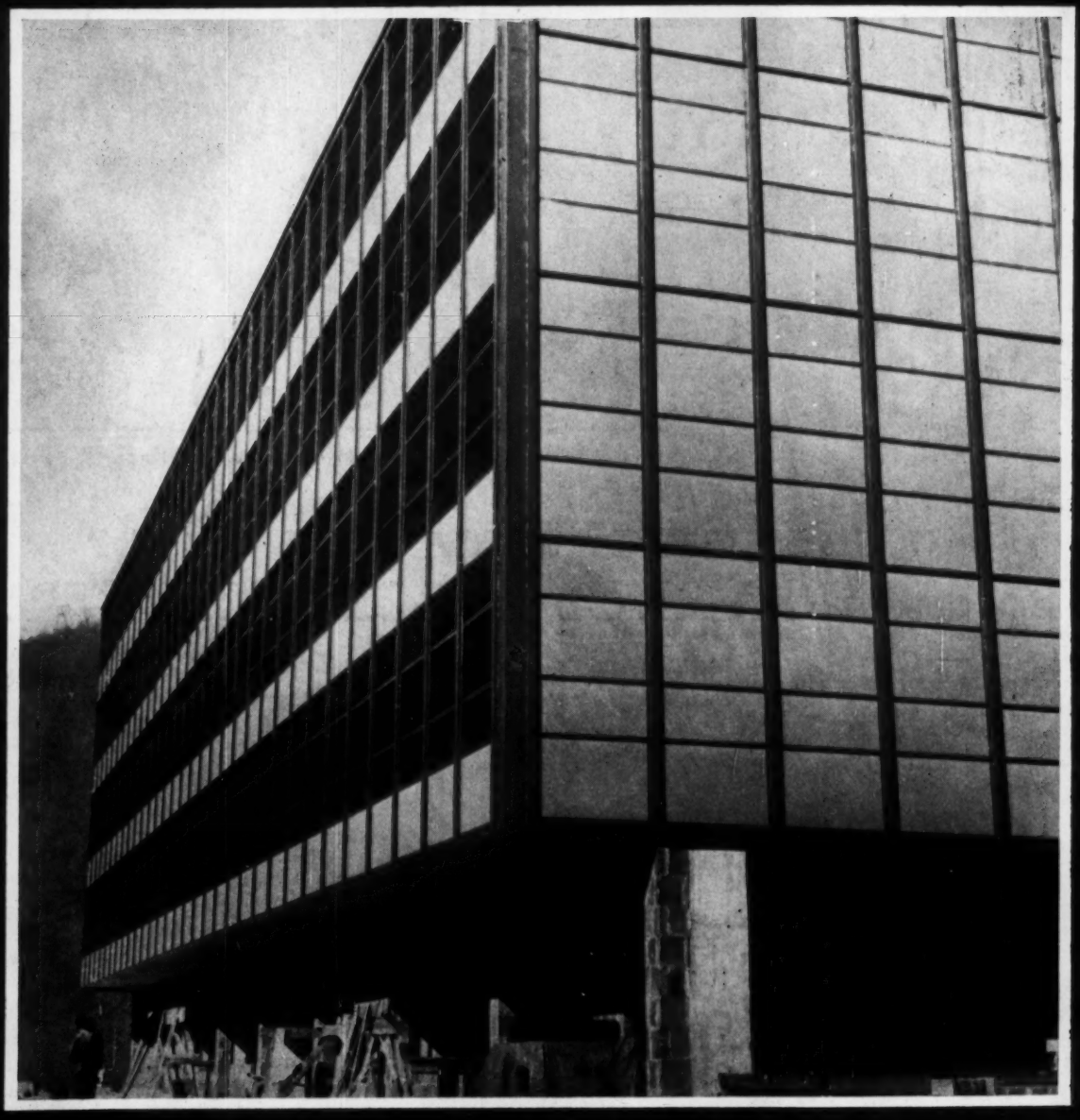
ENGINEERING NEWS-RECORD



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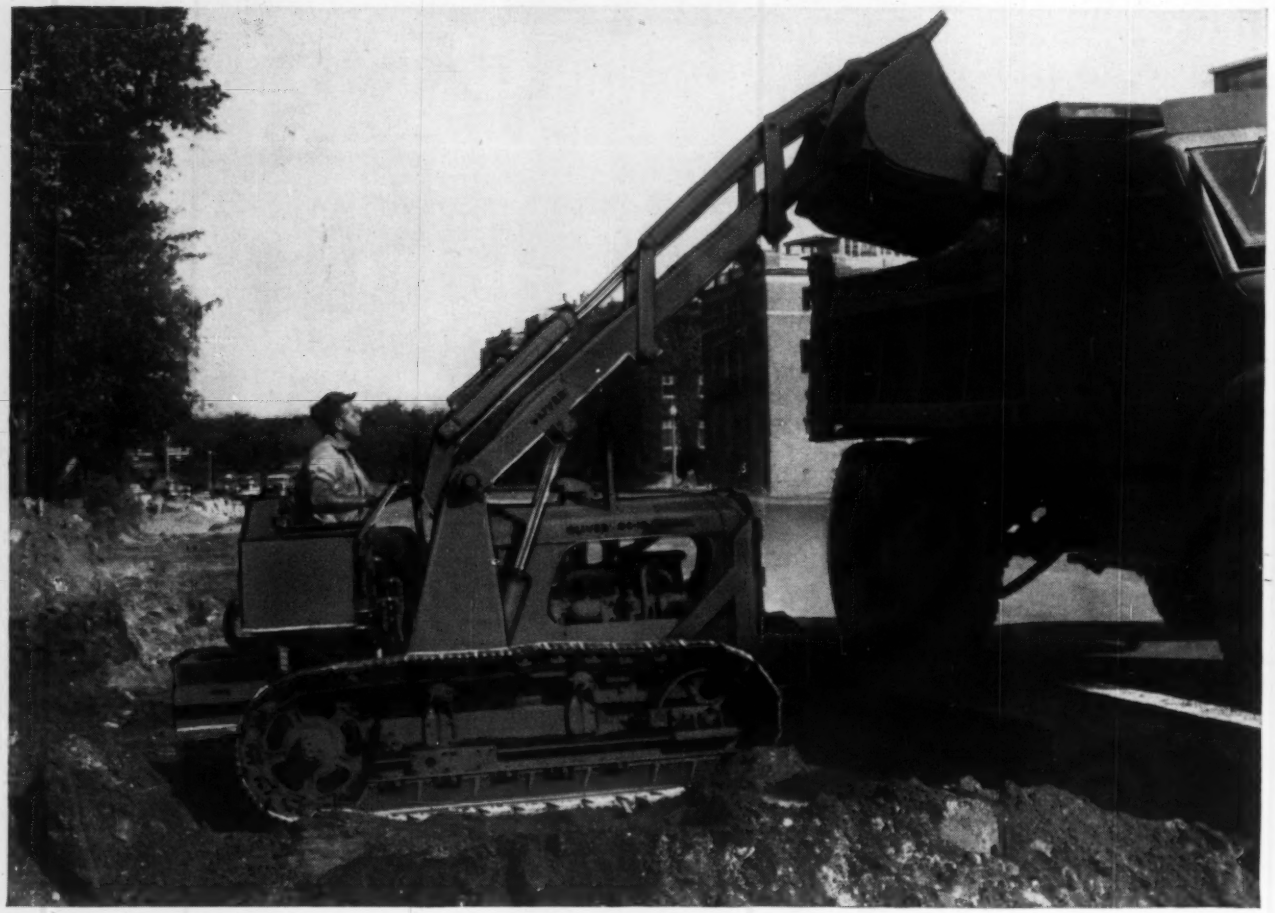


Oliver "OC-12" with hydraulic 1-yd. loader. This model has the long track frame for added stability. Loader has exceptional bucket rotation and 10' 4" loading height.

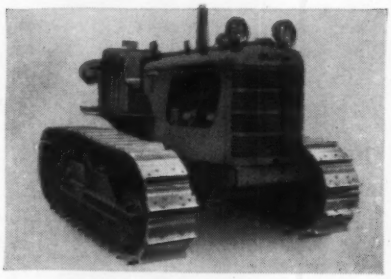
Another great tractor by Oliver ...THE POWERFUL "OC-12" CRAWLER!

It's a rugged, eager worker in the 45 drawbar h.p. class that features advancements in power, economy and operating ease to make every job more profitable.

The "OC-12" offers two engines of exceptional torque span—diesel or gasoline. Both engines have instant electric starting, pressure cooling, by-pass thermostat and full-flow oil system to insure quick starting and long, low-cost service.

The smooth lines of this unit show it is made for easy access and operator visibility. Controls are right where they're the handiest. Down to the key-lock switch, foam rubber seat, overhead-linkage clutch, this tractor caters to operator convenience.

Your Oliver Industrial Distributor will be glad to demonstrate the "OC-12." Give him a call.



The "OC-12" is available in two track widths: 44- and 60-inch—and two track lengths, one with four lower track wheels and one with five. Standard grousers are 14-inch.

Here is the "OC-12" with hydraulic bulldozer. Hydraulic pump is front mounted. Special protective grille is part of 'dozer frame. Blade has provision for tilt adjustment.

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Factory Building in New England

3000 tons of Bethlehem Structural Steel form the skeleton of the Norton Company's new grinding machine plant at Worcester, Mass. This modern factory is 760 ft long by 360 ft wide, with brick siding up to the sash and corrugated asbestos composition above. Company offices are housed in the 500-ft-wide section in front of the factory.

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Architect: Samson V. Becker; *Engineer:* S. Frieman; *Steel Fabricator and Erector:* Grand Iron Works; *Owner:* 236th Street, Inc.—all of New York City.

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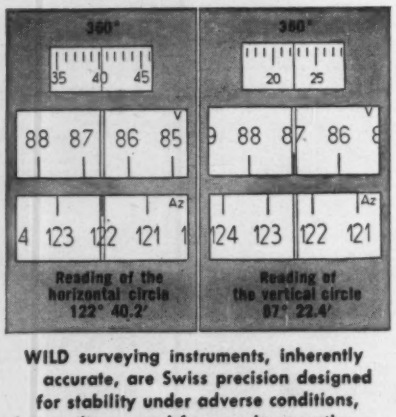

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Testing Amvit Jointed Clay Pipe are from, (L. to R.) E. T. Davis, Partner, The Chester Engineers; Joseph Diulus, President, Diulus Construction Company, Inc.; C. K. Stroh, Partner, The Chester Engineers; and Tracy Price, American Vitrified Products Company.

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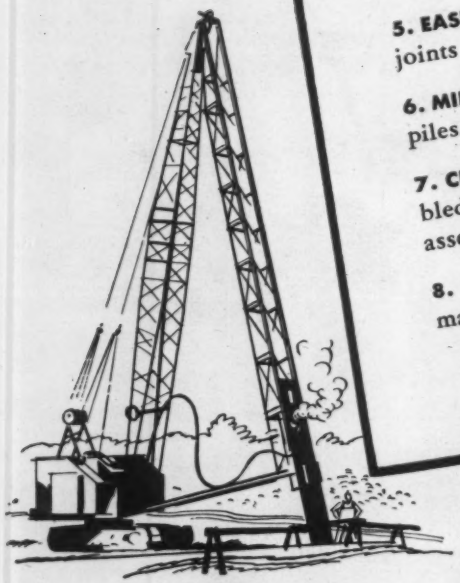

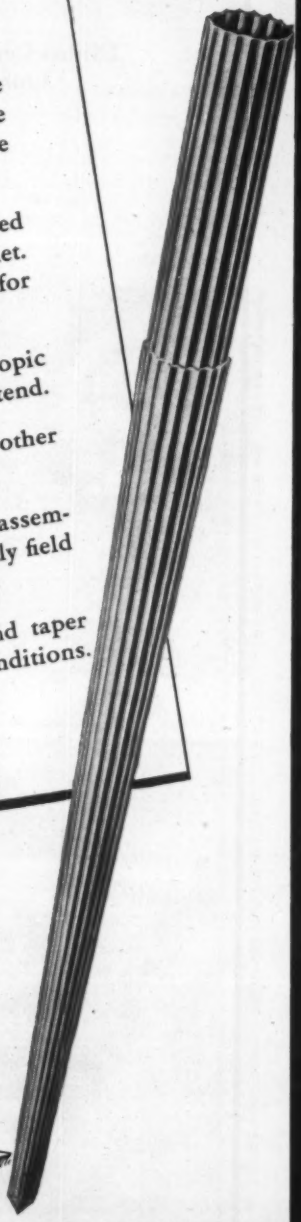

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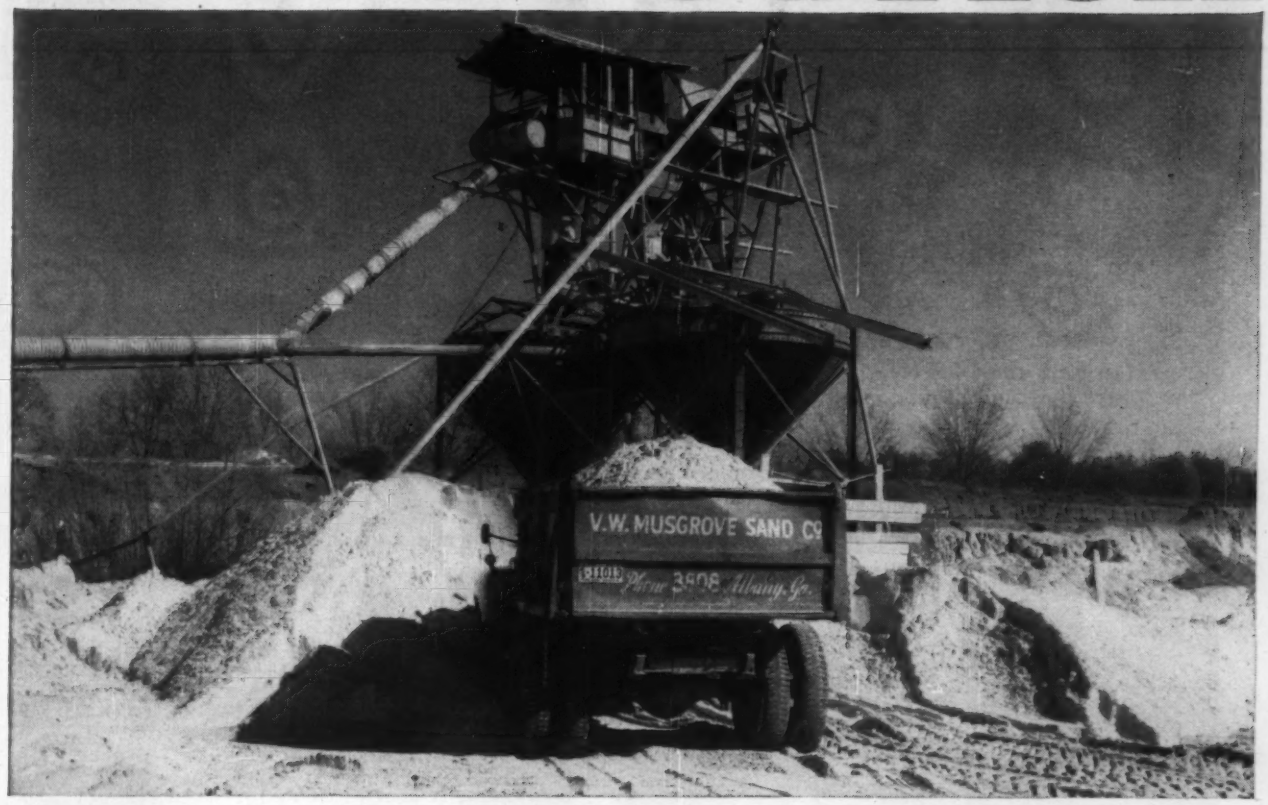

Sand company gets 95,000 miles with recaps from all-nylon All-Purpose tires

MUSGROVE Sand Company trucks haul sand and gravel to construction sites within a 45 to 50-mile radius of Albany, Ga. Working as many as 75 hours a week, these trucks travel over all types of roads in all types of weather. B. F. Goodrich tires are used 100%—chosen, says owner V.W. Musgrove, because they cut costs.

B. F. Goodrich All-Purpose tires are built with an *all-nylon* cord body. Nylon is stronger than ordinary cord materials, withstands double the impact and resists heat blowouts and flex breaks. The *all-nylon* cord body outwears even the extra-deep All-Purpose tread—up to 67% deeper than that of a regular tire—and can still be recapped over and over! Musgrove reports that with 2 recaps he gets 95,000 miles of service from *all-nylon* All-Purpose tires!

All-Purpose cleats are curved to grip better, on or off the road. "Buttons" on alternate cleats resist skidding. And as the center rib wears, it widens, putting more and more rubber on the ground, decreasing the rate of wear. All this, plus B. F. Goodrich compressed tread construction that resists abrasion and adds mileage, means that this sand company's tire dollars go farther.

See new *all-nylon* All-Purpose tires (rayon construction available at lower prices) at your B. F. Goodrich retailer's. His address is listed under Tires in the Yellow Pages of your phone book. Or write *The B. F. Goodrich Company, Tire & Equipment Division, Akron 18, Ohio.*

SUPER EXPRESS TIRES used on front wheels here will give about 150,000 miles of service with recaps, V. W. Musgrove reports.

"ALL-NYLON All-Purpose tires have definitely shown that they give much better than average service," owner Musgrove writes.

Specify B. F. Goodrich tires when ordering new equipment.

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER

2,400-ft. shore line of protected with a tight wall of USS SHEET PILING

SITUATED at the apex of the famous Golden Triangle —where the Allegheny and Monongahela Rivers meet to form the Ohio River—the new Point State Park is part of Pittsburgh's vast redevelopment program.

One important phase of this project involved the construction of a river wall and wharf along 2,400 feet of shore line around the Park by the Contracting Division of Dravo Corporation.

Approximately 1,700 pieces (1066 tons) of MZ-27 interlocking USS Steel Sheet Piling ranging in length from 25 to 35 feet were driven to form the practically watertight, sandtight wall.

Employing the ball-and-socket type interlock, and having a uniform web and flange thickness of 3/8 inches, MZ-27 steel sheet piling sections are designed to afford high section modulus and long life at minimum weight.

Interlocking USS Steel Sheet Piling keeps earth and water in place permanently and economically

Assembled in easily driven units that positively interlock to the next, USS Steel Sheet Piling forms a wall that is sandtight and continuous and that can be made practically watertight. Because of its great strength, long life, low cost of installation and low maintenance cost, this versatile piling has proved invaluable in projects involving the retention and control of earth and water.

Available in straight web, arch-web, and "Z" sections, USS Steel Sheet Piling is a finished product as shipped, ready to be handled and driven under the most difficult conditions of soil, water or surf. An inquiry to the sales office nearest you will bring suggestions for any special problems you may have.

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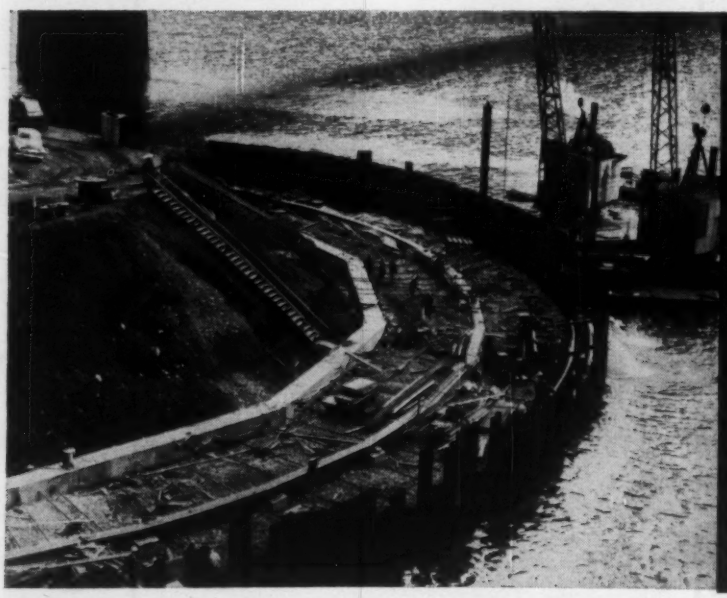
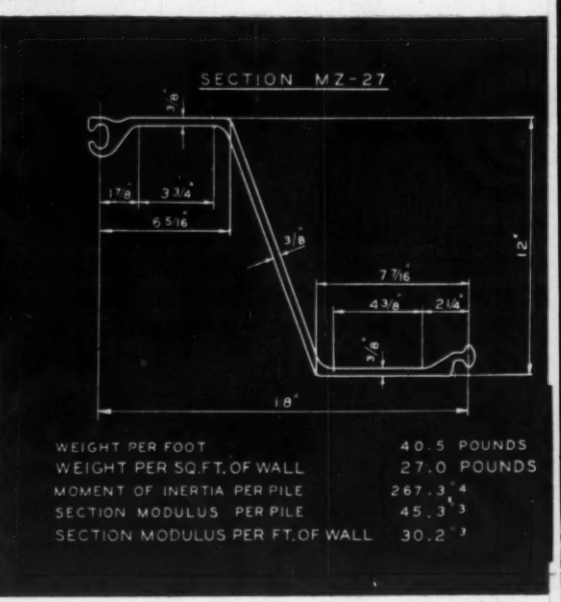
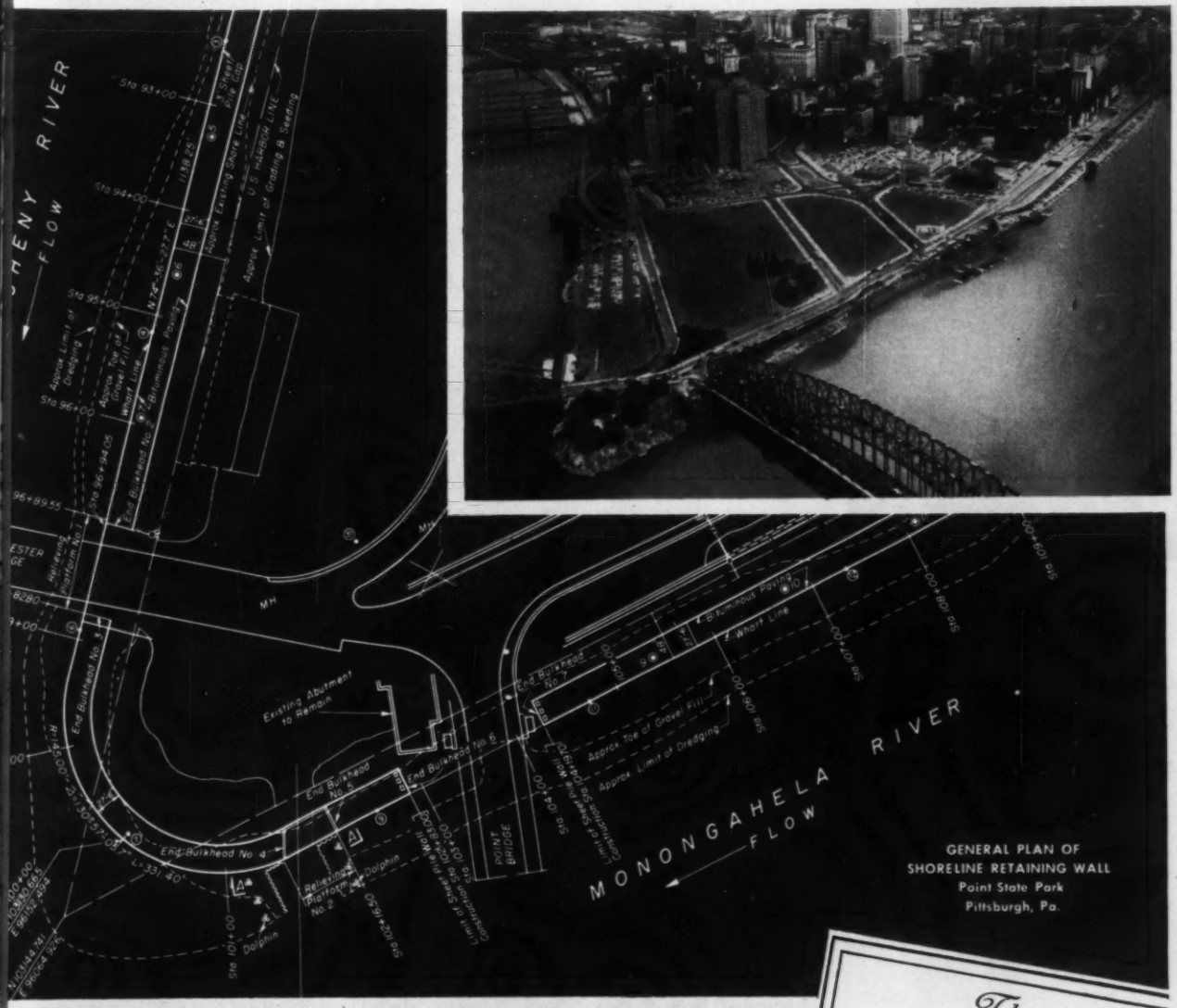
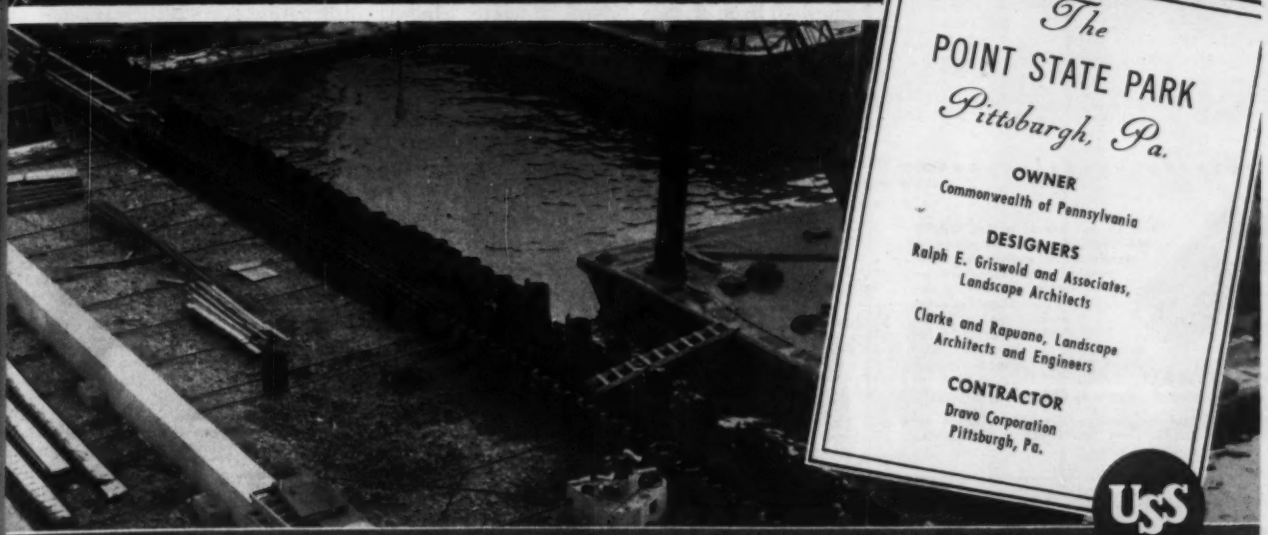




Pittsburgh's new Point Park



GENERAL PLAN OF
SHORELINE RETAINING WALL
Point State Park
Pittsburgh, Pa.



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READER COMMENT

Don't Make Bar Laps Short

Sir: The discussions of a rigid-frame failure by Zweig (ENR Dec. 30, 1954, p. 8) and Schlenker (ENR Feb. 17, p. 10) question whether the splicing of reinforcing bars as established in the American Concrete Institute's "Building Code Requirements for Reinforced Concrete (ACI 318-51)" provides adequate strength. There seems to be a lack of clear understanding of just what the code requirements are.

In ACI 318-51, Article 305(a), the maximum allowable bond stress on A305 deformed bars when in a horizontal position and with more than 12 in. of concrete below the bar is limited to 0.07 f'_c, with a maximum of 245 psi. When in the bottom of a beam, the maximum value is 0.10 f'_c, with a maximum of 350 psi. Article 506(a) states that in slabs, beams and girders, splices of reinforcement at points of maximum stress shall generally be avoided—and "generally" means in all but the most unusual cases. Article 902(a) states that within any span every reinforcing bar, whether required for positive or negative reinforcement, shall extend at least 12 diameters beyond the point at which it is no longer needed to resist stress.

While Mr. Schlenker's Sketch B, with the tension bars bent in a circular arc, is good detailing, there is no necessity for splicing these bars at that particular point. It would be much better to carry the outer column bars around into the top of the beam and out toward the point of inflection. For these top bars, the maximum bond allowed, even with 3,750-psi concrete, would be 245 psi, requiring a theoretical 20½-diameter lap. It would be intelligent practice to make this at least 24 or 25 diameters, and maybe even more, to allow for all the job conditions of possible misplacement of steel and other factors. If an extra 12 diameters is added to the theoretical 20½, a 33-bar-diameter lap would result.

In any case, the saving of a few inches of reinforcing bar in a lapped splice is very poor economy. The ACI building code establishes maximum values beyond which it is illegal to go. That does not mean that every designer must always go right up to the absolute maximum, with no consideration of conditions or of relative values. It has been pointed out in current literature that concretes with high ultimate strengths, and especially in narrow members, showed tendencies to split when they contain relatively high quantities of longitudinal bars. The designer who has a feel for concrete will be aware of such conditions and not necessarily go to the absolute maximum stresses and minimum coverages.

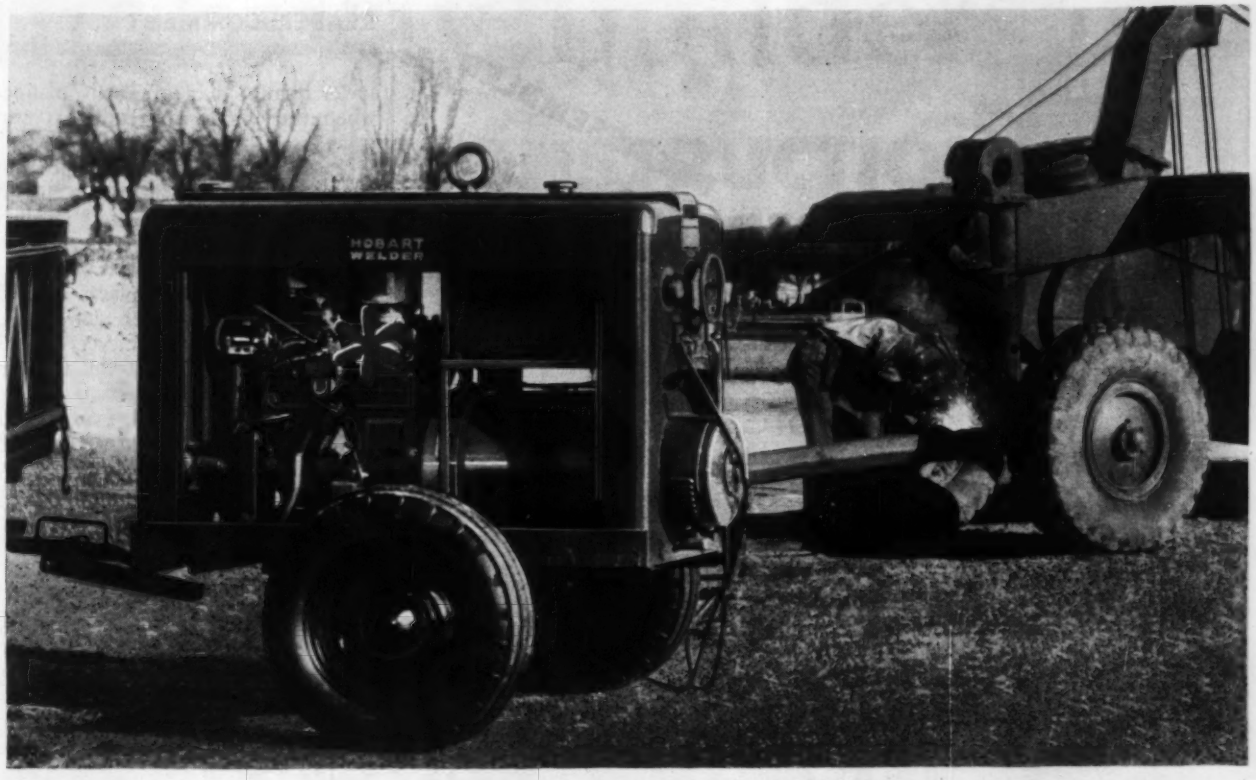
V. J. Gray
Consulting Engineer
Raymond C. Reese
Toledo, Ohio

Engineering Fees

Sir: A news item concerning the Indiana Turnpike on p. 45 of your Feb. 17 issue states that construction bids for work on that project in 1954 averaged 27%, or $28.5 million, below the estimates, and that, because the design and consulting engineering fees were based on a percentage of the construction cost, these fees were also reduced by $1.1 million and $445,000 respectively. A $4 million overrun in land costs cut the net saving to $26 million.

The above quoted figures are a vivid, and to the engineers involved I suspect almost catastrophic, demonstration of the fact that the tying of fees to actual construction costs is completely illogical. The reduction in construction bids on the Indiana highway came about through competitive forces at work at the time of bid openings, and also very possibly due to economies introduced into the design by the engineers. On the other hand, the engineers agreed to their fees long before the bids were opened, and, when estimating their engineering costs, undoubtedly translated the percentages into dollar amounts, using the estimated construction costs as their bases. Therefore, the engineers fees are reduced by (a) a change in the competitive condition in the **construction** industry and (b) their own efforts to design a highway which can be built at the lowest cost.

I am sure that the cost of doing a good job of engineering (which cost is perhaps 80% salaries paid to engineering employees) is not measurably lower than when the engineering contracts were awarded. But the engineers will now receive some $1.5 million **less** than they had expected to get. The only possible conclusions that can be reached on the basis of the above reasoning are: (a) the original fees contained an **excess** profit of 1.5 million. (b) the engineering firms will stand to have their profits drastically reduced or even eliminated, or (c) the engineering service provided will have to be of



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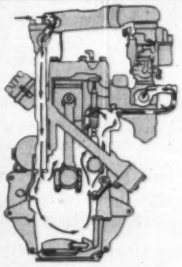

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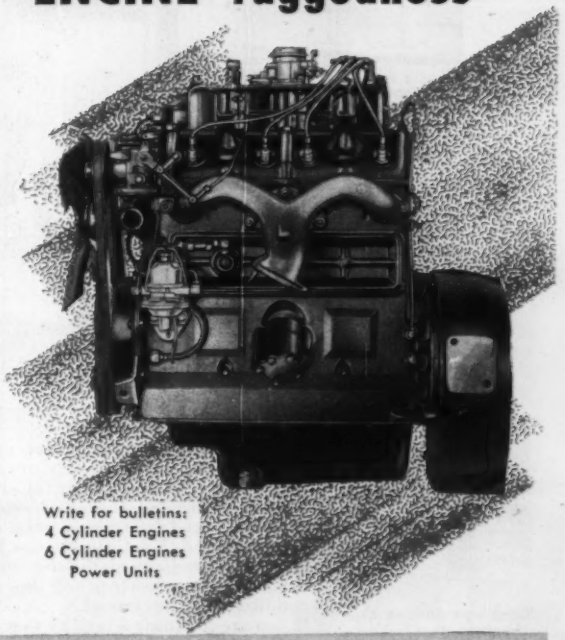

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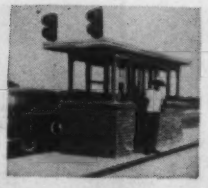

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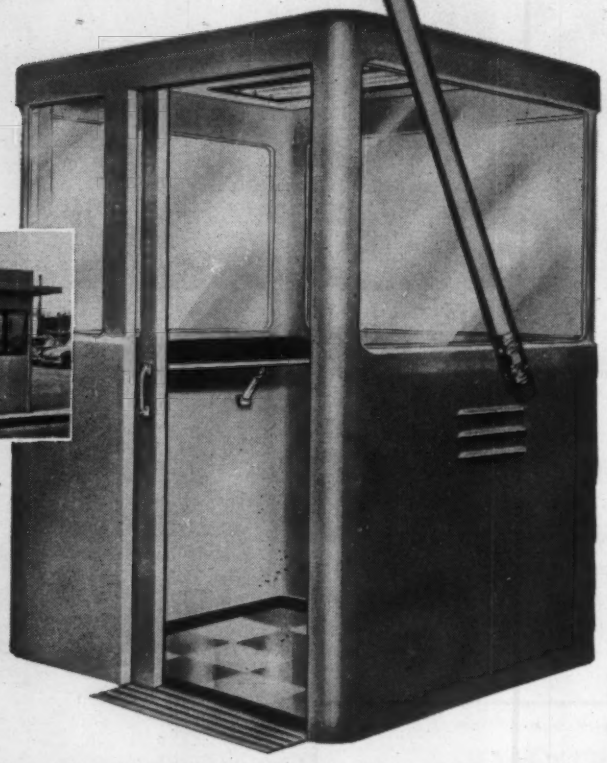

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READER COMMENT

lower quality than originally planned when the engineering contracts were signed.

It seems clear that the situation which faces the engineers on the Indiana toll highway is a direct result of the illogical scheme of tying fees to the **actual** construction cost. This method of fixing fees places a direct penalty on any engineer who devises ways to save costs by clever designs, or who makes a number of alternate designs to permit selection of the cheapest. I find it hard to conceive of any reason for it being so widely used.

As members of the engineering profession, we pride ourselves on being able to think logically, and arrive at sound conclusions, yet our accepted method of fixing fees for our work defies analysis on any logical basis. We should be ashamed of ourselves!

E. Montford Fucik
Executive Vice President
Harza Engineering Company
Chicago, Ill.

Radar Platforms

Sir: This concerns both the article, "Radar Platforms: A Challenge to Builders" by Cmdr. John J. Albers, CEC USN, published in ENR Nov. 25, 1954, p. 27, and an address presented by Cmdr. Albers on this subject before members of the American Society of Civil Engineers in New York.

After careful deliberation and after taking into consideration the importance of these structures for the nation's defense, I would like to pass on to you the following:

I question the use of a bracing system to give stability to the structure against the forces of wind and wave action. The failure of one bracing member will make the tower collapse. It is true that bracing has been used as a means of making structures stable since the early days of civil engineering, but this bracing is usually designed to give stability to structures against the action of wind.

Bracing that has to resist the force of wave action in the ocean is subject to many more cycles of stress reversal. The reversal of stresses takes place almost through the entire year with the exception of a few days where there is no wave action. The stress reversal gives the bracing members a much greater possibility of failure through fatigue as it is known in the usual structures. At the same time there is a pounding on the bottom of the supporting piles introduced by the bracing members, a pounding similar to

(*Continued on page 14*)

highway builders

...ROGERS CONSTRUCTION CO.

use TELSMITH plants

Mr. Charles McInroe of Rogers Construction Co., Portland, Oregon who produced the aggregate for this section of the Columbia River Highway, says: "We have used your equipment almost exclusively—your 48-S Gyrasphere does the work of two crushers—we have several of your 24 x 36 Jaw Crushers — one since 1942 — our superintendents do not want any other type—your feeder has out worn three other types—with your Super-Scrubber we got one of the cleanest materials we have produced in a long time—this equipment has made it possible for us to make a success of our business."

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1. 300% Torque Multiplication
Watch the powerful crowding action —forcing the bucket into the pile. The Clark Torque Converter provides that smooth, shockless power—as resistance increases, you get more torque automatically—*up to 300 per cent.*

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Get the bucket-blade into hard-to-dig material, or under a heavy obstacle, and loosen it by "working the bucket" —the two double-acting hydraulic cylinders are actually powerful enough to pull the back wheels off the ground.

3. Low Level Bucket Action
At a height of only 3 feet, you can tip the bucket back with a full load. Low-level bucket action is independent of boom hoist. You can travel a full load at low-level—with excellent visibility and stability, and you *won't* spill the load.

ays for this machine fast!

Capacity is strictly a matter of how much you can pick up in the bucket — NOT how much is printed on a specification sheet.

Take a close look at the bucket in the photograph. It shows a typical MICHIGAN® bucket load, heaped-up well over the 1⅝ yard *rated capacity* of this Model 125A. There's at least a 50% bonus in the bucket—and that's a major reason why a MICHIGAN pays for itself fast.

You simply move more with a MICHIGAN! For example, on a 10-hour shift, at a rate of 40 loads per hour, that 50% bonus can add up to *325 extra yards per day!* How long do you think it will take this kind of bonus yardage to pay for a MICHIGAN? We guarantee it won't take long.

Two outstanding features combine to give you bonus yardage on a MICHIGAN. The Clark-built power train, with torque converter and power-shift transmission, gives you more cycles per hour; MICHIGAN bucket action puts more material in each bucket load. For a demonstration, on your own job, if you wish, call your local MICHIGAN distributor, or write or call us direct. And ask for details on the low cost MICHIGAN Lease Plan.

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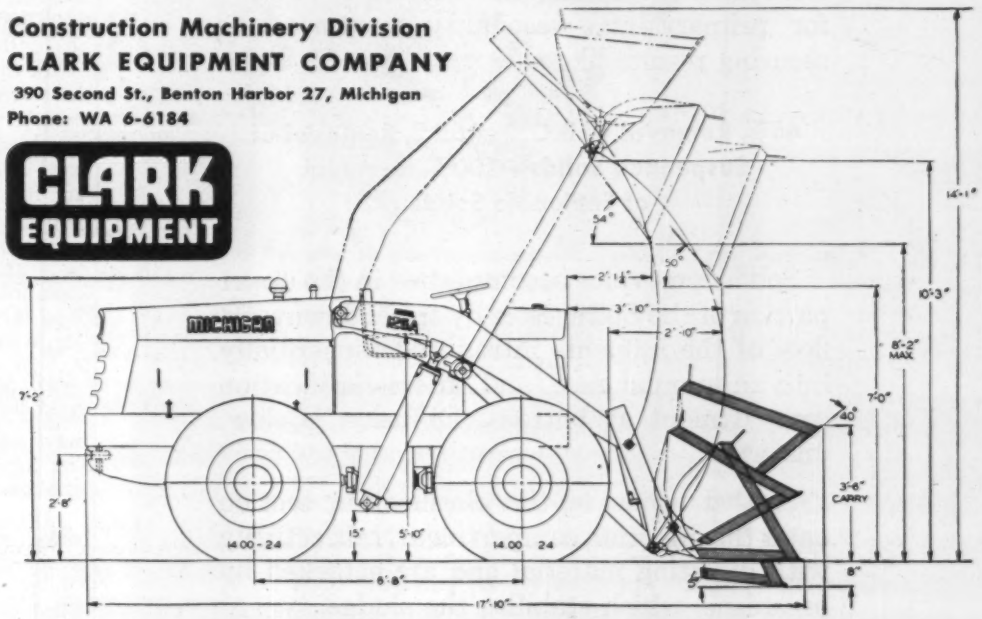
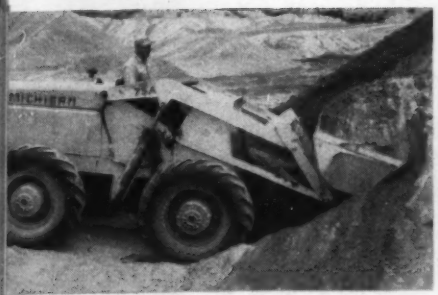


Multi-position Bucket Action: note the shaded area of this Model 125A range chart. From 8 inches below ground-level, two big double-acting bucket cylinders pull the bucket back to a 40-degree carrying position at a height of only 3½ feet. The operator has precision control over this independent bucket action.

ucket

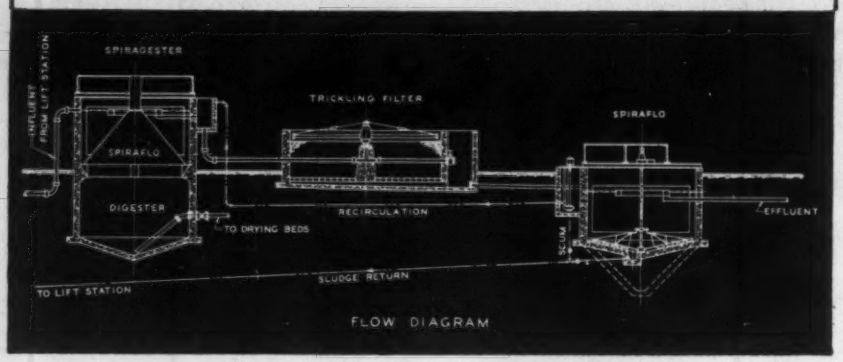


4. Full Power at the Bucket
Step on the brake and automatically put the transmission in neutral—the full hydraulic power goes into the bucket cylinders. Accelerate for faster bucket action and this automatic neutral takes the load off the brakes and torque converter.

5. Look—No Clutch!
Watch the driver *change direction while moving*—by flipping the easy hand-lever on the steering column. There's no clutch pedal on a MICHIGAN—the torque converter and power-shift transmission takes all the work out of gear-shifting.

6. Easy to Drive
Operate the boom and bucket controls with the right hand and spin the steering wheel effortlessly with the left—hydraulic power does the muscle work.

YEOMANS
Spiragester



FLOW DIAGRAM

Combination clarifier and sludge digester—for primary and secondary treatment—is securing results like these:

45% Removal of B.O.D.—65% Removal of Suspended Solids—100% Removal of Settleable Solids.

Solids removal is accomplished in the upper portion of the Spiragester by spiral downward flow of the influents introduced tangentially into an annular race, and enters clarification compartment at bottom. Diffusion is slow, uniform.

Settled solids in the clarification section enter the digestion compartment, mix actively with digesting material and are attacked by organisms which stabilize the sludge.

In the layout illustrated, secondary treatment is provided by a high capacity trickling filter and final sedimentation by a Spiraflo clarifier.

Ask for Typical Case History Performance Data. See your local Yeomans representative listed in the Yellow Pages of your telephone book under "Pumps," or write factory direct.

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READER COMMENT

the action of a pile driver pounding against a pile.

This action may not occur in the first few years after the structure is erected, because the present design calls for pretensioning of the bracing system, but this pretensioning is done against earth pressure without having any means of securing the supporting piles against small movements toward each other over a period of time and, therefore, is temporary. After loosing the tension in the diagonal bracing members a pounding action has to be expected which would endanger the structure.

A strut between the supporting piles on the bottom would improve the design, but would not justify a bracing system. In case of war the enemy has only to concentrate on destroying one of the bracing members, less than one foot in diameter, to make the structure unstable.

All these disadvantages are omitted in a structure which has no bracing members. Although the design I have developed also employs three round steel columns as supporting legs, they are inclined to form a tripod. The point of intersection of the three legs is located in the center of the wind pressure and also in the center of the dead load of the supporting platform. The moments introduced into the legs from the live load and some later rearrangement of equipment on the platform can easily be taken by the supporting legs. The moment from wave action and wind on the supporting legs will be the same as in the structure described by Cmdr. Albers.

There is an additional moment in the legs from their dead load. In keeping the legs light by having a hollow core instead of the complete filled section, my design reduces this dead load moment. This way the legs are able to take the additional moment.

HANS KOK,
Structural Engineer,
New York

CALENDAR

New York State Association of Highway Engineers, Hotel New Yorker, New York City, March 23-25.
Southern Municipal and Industrial Waste Conference, College of Engineering, Duke University, Durham, N. C., March 31-April 1.
Regional Construction Conference, sponsored by the Cleveland Engineering Society, Cleveland, Ohio, April 11.
Concrete Reinforcing Steel Institute, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., April 11-16.
Conference on Biological Waste Treatment, Manhattan College, New York City, April 13-15.
Building Research Institute, annual meeting, Princeton, N. J., April 18-19.

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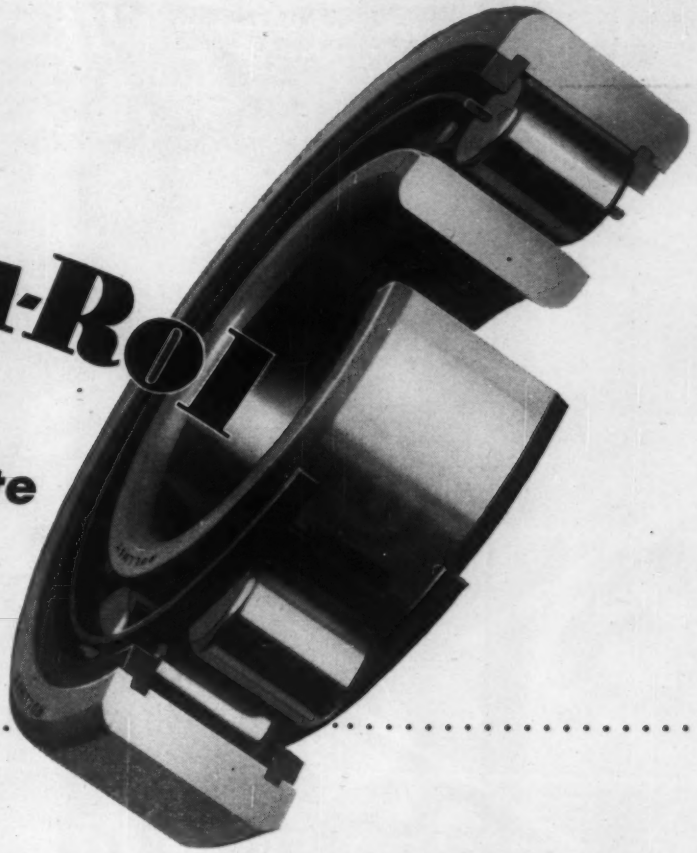

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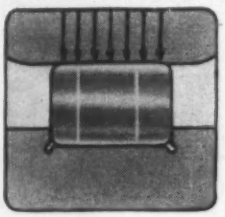

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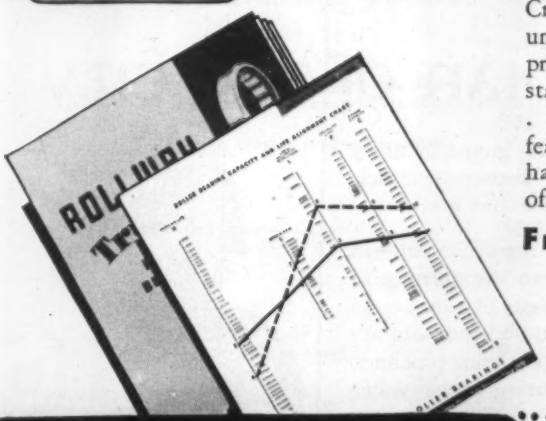
Crowned Roller under full load — stress uniformly distributed.



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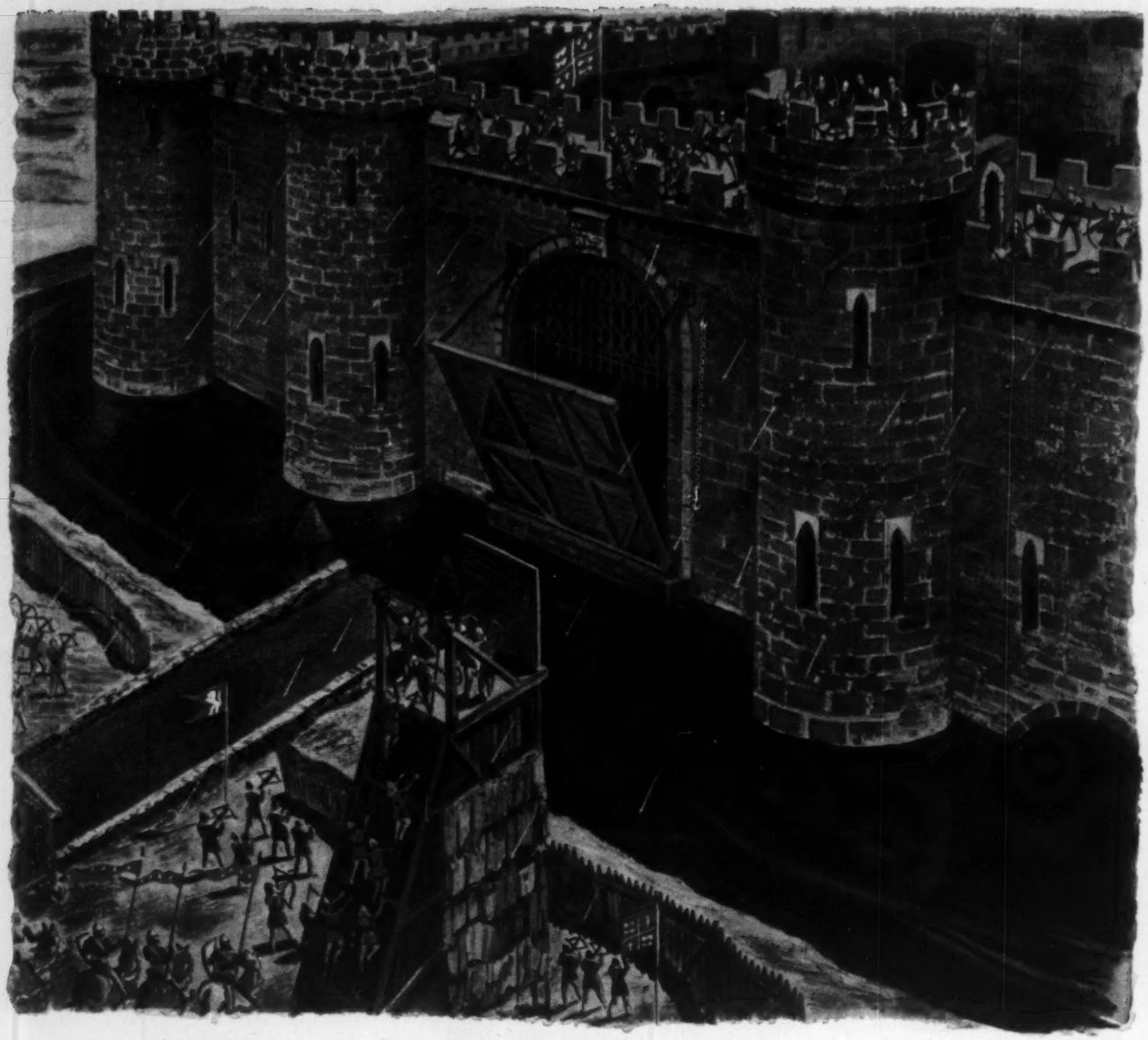

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From earliest times, mankind has recognized water as the guardian of its safety. The medieval castle relied on its water-filled moat to discourage attack. Today, water is still man's first line of defense against disease and fire.

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

NO BED OF ROSES—The South Carolina Highway Department is faced these days with the usual frustrations to which all highway departments are heir—plus a few more. While charges of "highway department dictatorship" and the like are being hurled at it by legislators irate over a road relocation proposal, these unexpected irritations have cropped up:

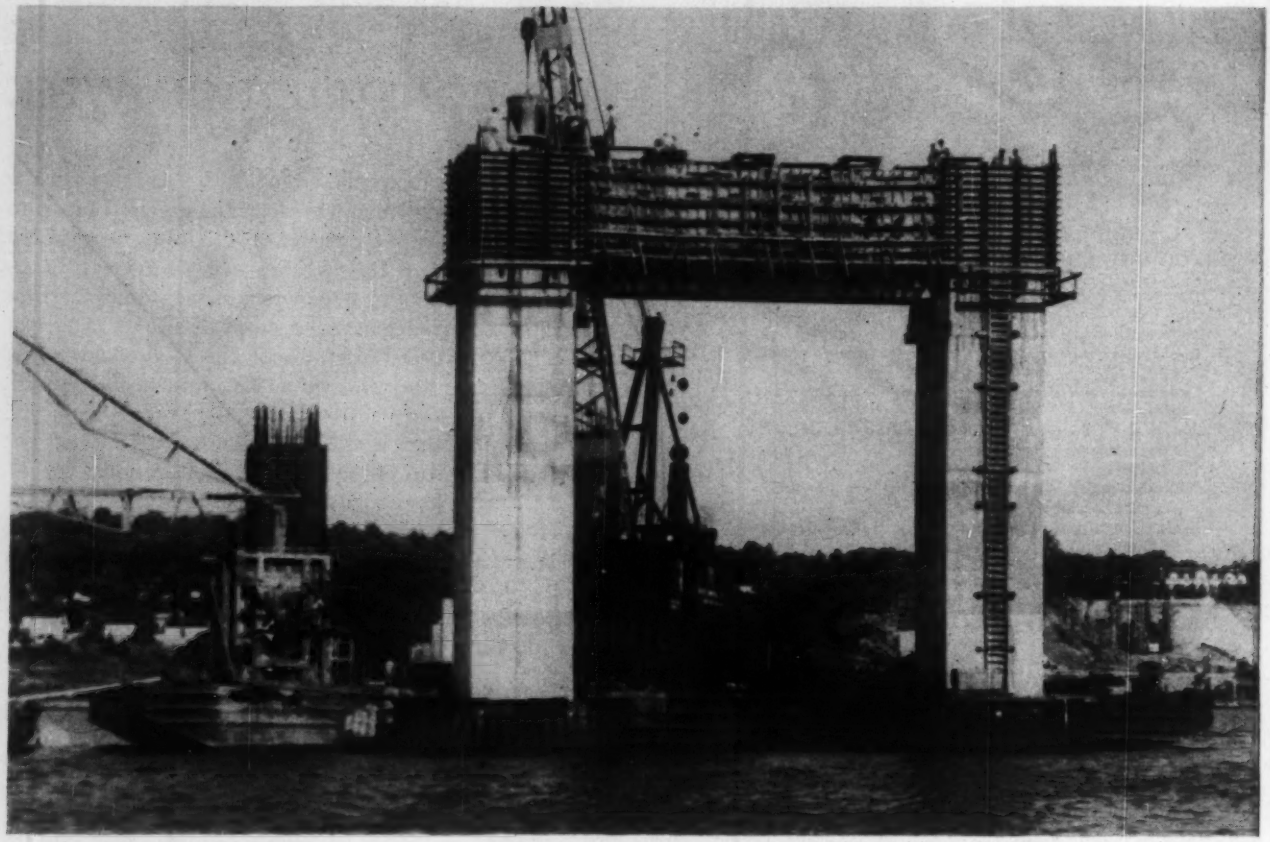
1. The United Daughters of the Confederacy, the Daughters of the American Revolution and garden clubs are up in arms over a proposed street widening in Columbia that would force the department to cut a seven-foot strip off the state capital grounds.

2. A court has decided the department had no right to collect 30 cents postage on over-the-counter license plate sales. While wondering how it would go about refunding postage to its cash-and-carry customers, the department also is trying to decide whether to appeal the decision.

SHORT LECTURE ON ETHICS—A lawyer member of New York City's Transit Authority last week challenged his colleagues' approval of contracts totaling $2.9 million to four consulting engineering firms. He claimed such sizeable contracts—on design and supervision of four subway improvements to cost $54.8 million—should be open to competitive bidding. Authority chairman Maj. Gen. Hugh J. Casey and chief engineer James H. Griffin quickly explained to him the facts of professional life and another member clinched the argument by asking if he would approve of lawyers bidding for cases. The contracts, now awaiting Board of Estimate approval, would go to Parsons, Brinckerhoff, Hall & Macdonald ($1.6 million); De Leuw, Cather & Brill ($325,000); Edwards, Kelcey & Beck ($350,000); and Seelye, Stevens, Value & Knecht ($720,000).

FOR YOUR FUTURES FILE—"Atomic sewage disposal" made front-page news in Cleveland last week. The head of Fenn College's chemical engineering and chemistry departments and the president of Distillata Co.—A. J. Teller and George Miller—were reported to have applied to AEC for waste fission products with which to try killing nonfilterable viruses in sewage. They are also looking about for a $700,000 grant with which to go into pilot plant tests.

ST. LAWRENCE RAISES NEW HOPES—Montreal plans to ask the federal government of Canada for four new traffic links across the St. Lawrence River at a cost of about $100 million. City planners have in mind a tunnel and a bridge at both the east and west ends of the 36-mi-long island to supplement what they describe as inadequate existing bridge connections.



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WASHINGTON OBSERVER

The Administration's big public works package gets approval this week from every member of the bipartisan Joint Committee on the Economic Report. The committee held hearings on the President's programs and his proposals as embodied in his economic message to Congress.

The committee says the nation has fallen behind its needs for such things as highways, hospitals, schools, and other community facilities, including slum clearance and public housing. The committee's report favors more spending on all governments involved—federal, state, and local.

Public works can be used to combat a slump the committee finds. But its basic theory is exactly the same as that which Eisenhower uses to justify his programs:

An accelerated program of public works is needed to catch up with construction left undone because of World War II and Korea.

•

The committee says a coordinator of public works is needed if such a big program of construction is to be handled to best advantage as a means of combatting a business decline.

This recommendation was made a year ago by the same group—and was favored by Eisenhower in his messages to Congress this year. So far, however, a request to Congress for authorization and funds—which Eisenhower promised—has not been forthcoming. One draft of a bill, at least, has already been criticized by some Administration officials who are concerned with construction matters.

The committee flatly opposed, however, the public works financing proposed by Eisenhower in his highway program (see page 23). The unanimous view is that federal expenditures for public works should come out of regular Treasury funds, and not be raised by "circumventing the public debt" through bonds floated by new public authorities.

•

The housing boom has tremendous consumer demand behind it. That's what you get from the Federal Reserve Board's latest report on consumer intentions to buy various goods and services.

The figures are startling. The survey, taken during January and February shows that 9.6% of all consumers plan to buy homes this year. A year ago, only 6.6% said they planned to buy in the year ahead.

This indicates that roughly 50% more people are in the market for homes during the months ahead than there were a year ago. Whether or not the figures are exact, they clearly reveal a terrific upsurge in people's interest in buying a home.

The FRB says the increased interest comes mostly from veterans and that easier terms play a big part.

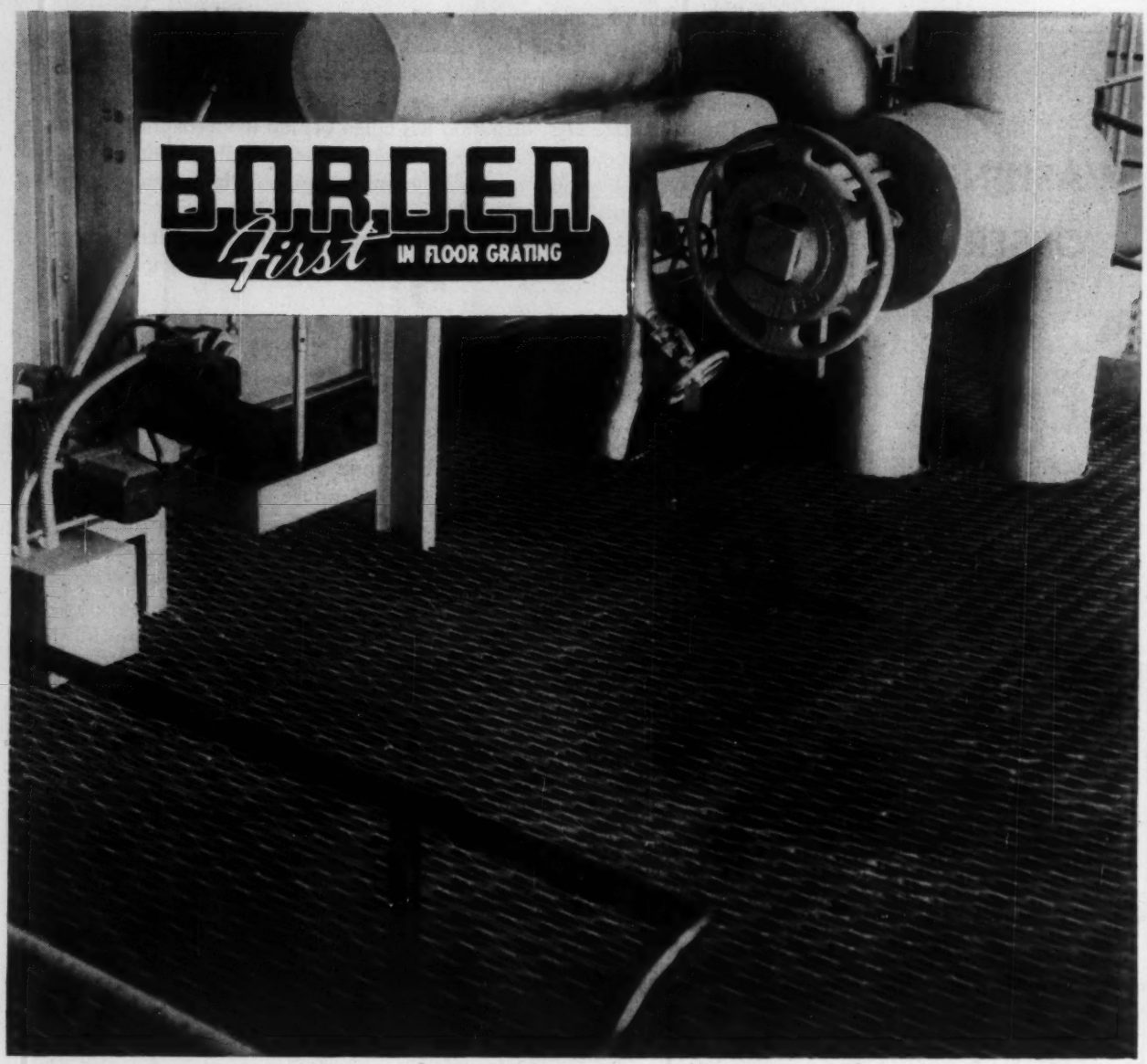
There's still no plan by VA officials to tighten up terms according to Thomas J. Sweeney, who testified before a committee last week.

Top Administration officials are closely watching the housing boom, even though it's too early to say whether they will step in to knock some of the top off the demand.

•

Hoover Commission favors less government subsidy in a whole string of agencies that affect construction such as housing, rural electrification, Veterans Administration, and the like. Its report on lending agencies asks that such agencies be made self-supporting by collecting enough in interest and fees to pay their own way without money from Congress.

Such recommendations don't stand much chance in Congress.



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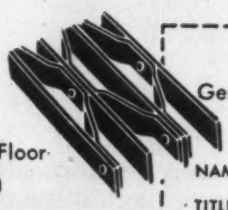

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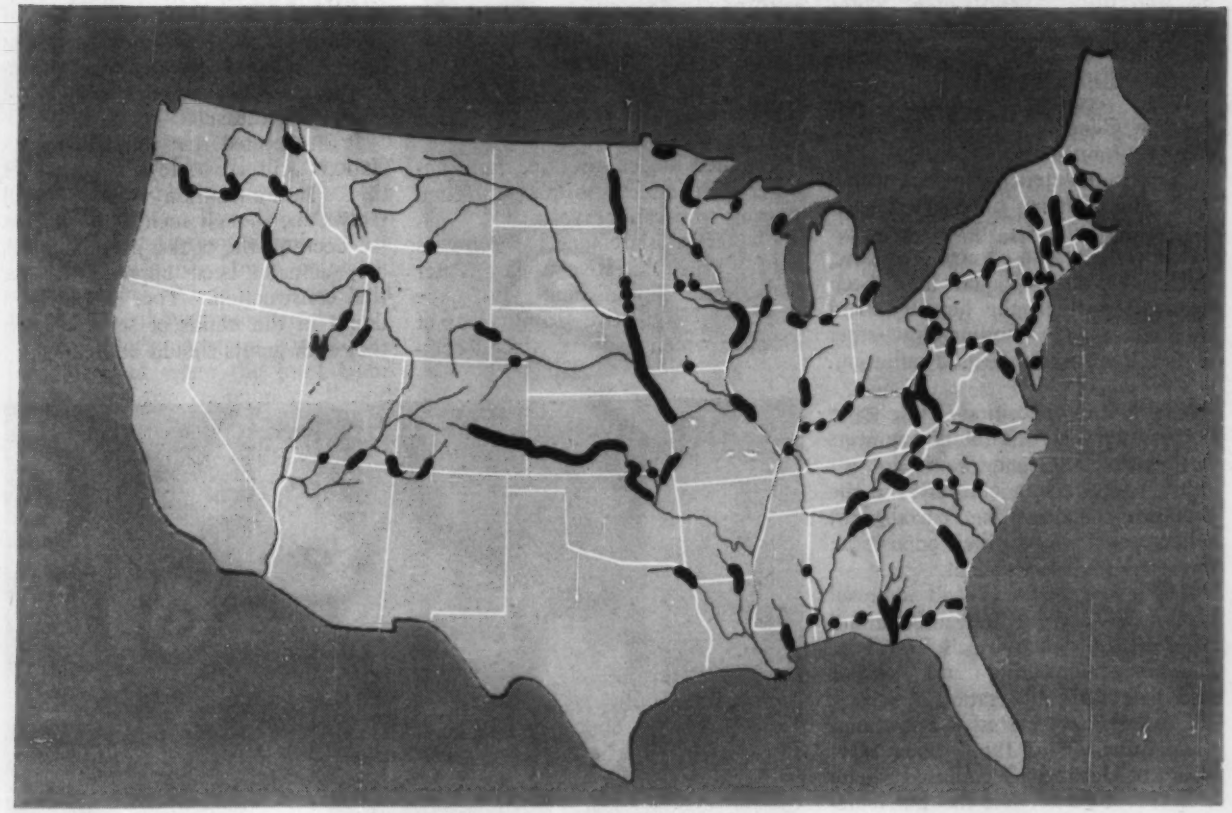


A FIGHT BREWS over river pollution—actual or potential—in some 100 areas of the U. S. (in black). The question:

Clean Streams—How Much Federal Control?

A fight is shaping up over proposed legislation that would broaden federal responsibility for water pollution abatement. It's too early to tell how many states will line up in opposition to the proposal, but it will be basically a struggle over states' rights.

The point at issue is Senate Bill 890, intended to "extend and strengthen" the Water Pollution Control Act of 1948. It will be argued that the present law needs to be extended beyond its 1956 expiration date but should not be changed.

Amendments to the pollution law, proposed by the U. S. Public Health Service and written into S. 890, would make it much easier for the federal government to bring an alleged offender into court. Under the existing law no suit may be filed by the federal government without the consent of the state in which the pollution originates. Proposed changes would eliminate this requirement making federal authority more real.

Ultimately at issue will be enforcement of pollution abatement on waters which flow from state to state. Of the myriad of such locations, PHS sees 113 areas (see map above) as present or potential problem points.

The proposed amendments to the 1948 act will come under fire when public hearings are held. Most of the arguments will be against federal encroachment on states' rights.

• **In defense of the changes**—For the defense will come a strong counter plea that this is all a tempest in a teapot. In the seven years that the present law has been on the books, says U. S. Surgeon General Leonard Scheele, no case has had to be taken to court. Having such enforcement provisions on the books is the only way to be sure of enforcement, Scheele says. He feels that the new law is better than the old in that it specifies a number of new steps to safeguard state and individual rights.

The new procedure would be this: Whenever the Surgeon General believes that interstate pollution is occurring, he would notify the person causing the pollution and advise the control agency in that state, setting a reasonable time for abatement.

If steps are not taken as a result of this notice, a public hearing would be called in the locality where the pollution is caused. A federally appointed board would hear the dispute, but the Public Health Service and other Department of Health, Education and Welfare officials would be in the minority. (Appointment of a board and hearings are completely new proposals.)

This board, on the basis of evidence presented, would decide whether interstate pollution is occurring and what "reasonable and equitable" steps should be taken.

After the person causing or contributing to pollution had had "reasonable opportunity" to comply, then the Health, Education and Welfare Department might ask the U. S. Attorney General to sue in federal court.

Part of Scheele's case for the new procedure is that since federal laws have been on the books only one case

. . . Stream pollution

has progressed to the point that the Surgeon General has sent formal notices to polluters. This case involved oil well drillers in Arkansas, whose waste brines were discharged into Corny Creek. These waters move on into Louisiana.

After receiving complaints, the Surgeon General, without the necessity of a formal hearing, issued a first notice to polluters, many of whom took action. He has since issued a second notice to about 50 well owners.

Under the proposed new procedure, a formal hearing would have been held, after which the hearing board would have made a finding on whether or not there was interstate pollution.

• **Voices in opposition**—In a spot check among state sanitary engineers last week, ENR found some not yet ready to comment officially on the proposed changes in federal law; others were strong in their opposition; one gave his endorsement.

The lone unqualified approval came from David B. Lee, director and chief engineer of Florida's Bureau of Sanitary Engineering and current president of the Federation of Sewage & Industrial Wastes Associations: "I personally and the Florida State Board of Health have endorsed Senate Bill 890. I do not feel this bill represents any repeal of state sovereignty. In my opinion any state making serious and conscientious efforts in this program of stream pollution abatement should have no fears of the federal government. I feel the proposed bill is a great improvement over the existing law."

Milton P. Adams, executive secretary of Michigan's Water Resources Commission, said official state policy had not yet been decided. But unofficially he said: "Our interstate relations are with Ohio, Indiana, and Wisconsin. No problems exist between Michigan and these states that could conceivably require strengthened enforcement. Such authority as the Surgeon General may have would be helped, not hindered, by obtaining state consent before filing suits. After all, public trust title even to interstate water vests in the states concerned, not in the federal government. My recommendation to our state commission and to our governor will be to urge enactment of the bill—but without Section 5 and with such revision of Section 8 as may be necessary to restore the 1948 policy."

Vinton Bacon, executive officer of California's State Water Pollution Control Board, told ENR: "S. 890 came as a surprise, just after the last meeting of our state board. We have asked California senators to delay all hearings on the bill until after April 15 so that the full board can consider it officially and comment at the board's next meeting, April 6."

Blucher Poole of Indiana and V. M. Ehlers of Texas said they had not yet been able to make a full study of the bill. Ehlers however, was, "certainly inclined to disfavor any legislation infringing on states' rights."

Detailed objections came from another state director of sanitary engineering who cannot be named.

No official statement has come as yet from the Ohio River Valley Water Sanitation Commission. But the three-man legislative committee of Orsanco which will recommend commission action includes Hudson Biery, who has strongly opposed any change.

• **Other criticism**—Another facet of the new law that will come in for criticism concerns an omission. Where the present law authorized a grant of $20 million per year for construction of municipal sewage treatment facilities, no such authorization is included in the new measure.

It is expected that municipal associations will advocate restoration of this. Administration officials will reply that, though such authorization has been on the books, no money has ever actually been appropriated for the construction. Too, there is a doubt in the minds of some officials that such grants should be made.

ENGINEER Frank Drought (right) gets a certificate of appreciation from contractor L. H. Dorst for his work to improve engineer-contractor relations.

Play Fair With Contractors, Engineer Says

Contractors at Dallas, Tex., have honored Frank T. Drought, San Antonio consulting engineer and president of the Texas Society of Professional Engineers for a unique contribution.

Mr. Drought is the author (for internal consumption within his organization) of a pamphlet known simply as "The Book." Says "The Book":

"The purpose of this organization is to give our clients the full value of our creative ability . . . The principal agency that uses the engineering solutions produced by this organization is the contractor.

"We will not assume that he is a gambler . . . We will not take advantage of an error he might have made . . . We will not treat him as an individual whom we have in a trap because he signed a contract.

"We will recognize that our engineering may not have been too clearly defined, and we will render him all reasonable and fair assistance in order that he may suffer the least financial loss if he is in difficulty. We will give him all the cooperation necessary to enable him to complete the work on schedule in a profitable manner. But we will not permit any deviation from the plans and specifications without the consent of the designer and owner."

The Municipal Contractors Association of the AGC presented Drought with a certificate of appreciation.

Rough Road Ahead

President's highway plan is under attack by both Democrats, Republicans

The President's $101-billion highway plan is getting almost no wholehearted support from either Republicans or Democrats in Congress.

As things stand now, it seems clear that nothing like the President's recommendations can get through, certainly not this year. There is virtually no outstanding Republican or Democrat in either House or Senate who is willing to lead an all-out fight for the Eisenhower program.

The highway program got another jolt this week when the Joint Committee on the Economic Report agreed unanimously that federal financing of public works "should be direct from the Treasury, rather than from indirect authorities which circumvent the public debt limit or are nurtured by special earmarked revenues."

This conclusion—aimed directly at the key to the President's program—is backed by the eight Democrats and six Republicans on the committee which made its recommendation on this point in connection with its report on the Administration's economic programs.

Commerce Secretary Sinclair Weeks and his highway consultant, Francis V. du Pont, underwent a barrage of critical questions last week as they attempted to sell the President's program to the Senate subcommittee.

Gen. Lucius D. Clay, chairman of the President's highway committee, got similar treatment. He made a good case for the Administration bill but found none of the senators fully sold on it.

Democratic members showed their opposition to many features of the plan, particularly to the bond financing scheme and its interest costs of more than $11 billion. Senators Patrick McNamara of Michigan and Richard Neuberger of Oregon spoke up again for pay-as-you-go financing with a federal gasoline tax of 3 or 4 cents a gallon. The top Republican on the committee, Sen. Edward Martin of Pennsylvania, previously made the same suggestion.

Legality of the proposed financing plan was sharply questioned by Sen. Francis Case of South Dakota, former Republican chairman of the subcommittee. The White House is confident that its proposal conforms with the law of the land.

A key point in the Administration bill calls for pledging of all motor fuel tax revenues in excess of $622 million a year, to pay off the highway bonds. Sen. Case declared that Congress would never approve dedication of tax revenues for such a purpose unless the pledge also included rural roads.

COMMERCE SECRETARY WEEKS backed the President's highway program.

Sen. Albert Gore, Tennessee Democrat, tried to force an admission from Secretary Weeks that pledging future revenues would mean that the highway bonds would be government obligations backed by federal credit. Gore also attacked the Administration program as openended—that it could go on in perpetuity with no limit on time or amount of money disbursed by the proposed federal highway corporation or on what it could do with funds in excess of bond needs.

Several senators, particularly Dennis Chavez, New Mexico Democrat who heads the full Public Works Committee, called the Administration measure an investment bill—or bankers' bill—and not a roads bill.

Questions about financing all interstate roads through tolls brought similar answers from du Pont and Clay. Du Pont said that the Administration approach is to pay for the roads out of taxes, and that toll facilities are feasible for only about 6,000 mi. of the system—half of what the Commerce Department had previously contended. Clay said toll roads should be built only for luxury transportation parallel to toll-free roads and that the federal government should not go into toll roads.

At the same time, Clay defended firmly the proposal to reimburse the states for toll roads built on the interstate system. This plan would pump more money into building other needed roads, he argued, because the states must use the repayment funds on other federal-aid highways or in retiring toll bonds.

As States See It

Federal highway proposals undergo critical analysis by state road conferences

Roadbuilding problems at the grassroots and the national levels were analyzed at three overlapping conferences last week in Chicago.

The Mississippi Valley Conference of State Highway Departments held its 46th annual meeting. Registration totaled nearly 350. Speakers presented informal talks and formal papers dealing with highway problems.

The other two conferences—both closed sessions—were a meeting of the executive committee of the American Association of State Highway Officials and meeting of the highway administrators of the 48 states. Chief topics under consideration at both conferences were proposals for an expanded national highway program.

A. E. Johnson, AASHO executive-secretary, raised the question as to whether the Administration's 10-year, $101-billion program was big enough to meet future demand. He expressed the opinion that "we'll have to use credit financing if we want to complete such a program within our lifetimes."

• **No pay-as-we-go**—Similar views were expressed by Pyke Johnson, chairman, subcommittee of roads, U. S. Chamber of Commerce, who declared that it would be economically unfeasible to pay for these additional roads on a pay-as-we-go basis. "For one thing," he said, "it would require a total federal gasoline tax of 6 cents per gallon to pay for such a program.

M. Clare Miller, managing partner, San Ore Construction Co., McPherson, Kan., declared that state highway departments are getting some of the best bargains possible in their contract lettings today.

"Every letting day is a bargain day," he said.

Speaking for the Highway Contractors Division of the AGC, Miller assured the Mississippi Valley highway engineers that highway contractors have ample capacity for successfully carrying out a greatly expanded roadbuilding program.

Lt. Gen. Eugene Reybold, executive vice president, ARBA, urged the conference to examine carefully all current proposals for an expanded roadbuilding program. "There is merit in all," he said, "and the issue may eventually be resolved through considerations involving not only our economic and social welfare, but also our military and civil defense requirements."

Chicago Skyscraper

Construction will begin next fall on $6-million office building in Loop

Inland Steel Co. has unfolded plans for a new office building in the heart of Chicago's Loop at Dearborn and Monroe Streets. Construction will get under way this fall. Completion is scheduled for late summer of 1957.

The 19-story office building—first skyscraper to be built in the Loop in 20 years—will cost $6 million. This does not include the 192x120 ft site which is secured on a 99-year lease from the Chicago Board of Education.

The building will have two structural elements joined together with short corridors at floor levels. One will be the 19-story main office tower measuring 177x58 ft in plan.

The other will be a windowless tower or service shaft about 50 ft square which will house the elevators, fire stairs, washrooms and utilities. It will rise to a height of about 60 ft above the 250-ft-high office tower. All heating, air-conditioning, electric wiring and piping will rise in the shaft and be distributed to the office areas through the cellular flooring.

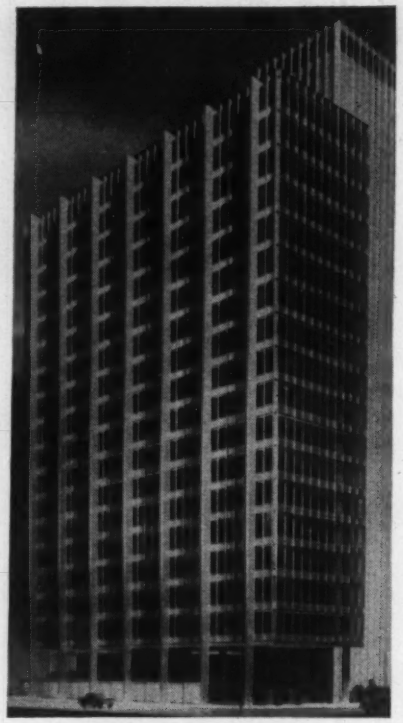
• **Unique columns**—The office building's most striking feature is the arrangement of its 14 supporting columns. They are all exterior columns which rise to the full 19-story height of the building along each of its two major slides. They are spaced about 26 ft apart. All floors above the first cantilever out 10 ft at each end of the building.

Since there are no interior columns, the entire 177x58 ft area at each floor is unobstructed. This permits complete flexibility of office layouts; movable partitions may be used for space subdivisions as desired.

The steel frame will be all-welded, and exterior metal finish will be stainless steel. The 14 supporting columns for the 19-story office tower will be structural steel of special design and section. They will be fireproofed and encased in stainless steel. They will be 22 in. wide and will extend out about 4 ft from the exterior wall line. Foundations will be supported on steel H-beam piles driven about 110 ft to bed rock.

• **Fixed windows**—Windows will be double-glazed, with an exterior pane of heat-absorbing glass. They will be installed between vertical strips of stainless steel, spaced 5 ft apart between columns. All windows will be fixed.

One special feature is the method of window washing. Instead of hand washing the exterior surfaces, a special rig traveling up and down between the exterior columns will wash the windows and all exterior steel surfaces. Two operators will ride it.



• **Floor construction** — Floor-to-floor height will be 13 ft, and clear ceiling height, 9 ft. The 58-ft span transverse floor beams are built-up girders, 36 in. deep. They will carry 16-in. rolled beams which, in turn, will support cellular steel flooring. Floor finish, in general, will be lightweight concrete topped with plastic tile.

The cellular flooring will provide the distribution system for heating and air conditioning. The suspended ceilings will be acoustic, perforated steel panels equipped with integral lighting fixtures.

A typical floor has an area of nearly 10,500 sq ft. Total gross area of the office building, a one-story basement and the service shaft is 300,000 sq ft. There will be about 4,100 tons of structural steel in the structure.

The street level will have no stores or shops. A two-story all-glass front on Monroe St. will be set back 17 ft beneath the upper floors to give a deeply sheltered entrance to a high-ceiling lobby. Behind the lobby, the ground floor, with granite walls, will house a 50-car parking garage and a glass-walled mezzanine office.

Skidmore, Owings and Merrill is architect for the project. Wm. E. Hartman is partner in charge. J. D. Train is project manager, and B. J. Graham is in charge of design.

Pipe Makers Meet

American Concrete Pipe Association holds 47th annual meeting in Boston

Speakers at the 47th annual convention of the American Concrete Pipe Assn. in Boston last week declared manufacturers, engineers and contractors share responsibility for getting the full service potential from concrete pipe.

The speakers cited experiences with concrete pipe and recommended procedures to be followed in its use. They said it can give excellent service in most applications.

F. M. Cahaly, senior engineer for Fay, Spofford & Thorndike, Boston consulting engineers, said surface disintegration resulted in one medium sized sewerage job because the type of waste was not sufficiently considered in specifying the pipe to be used.

On the same job, Cahaly said, excessive leakage in one section of the line resulted because the contractor had heated Leadite to a point where the basic self-sealing characteristics of the joint material had been destroyed.

Cahaly said his firm was called in as consultant after damage to some culverts and cattle passes on the West Virginia Turnpike had been discovered. He said they found this situation: The 97x97 in. reinforced concrete flat-base pipe was installed with cover ranging from 3.5 ft to 50 ft. Damage was the result of improper installation —uneven placement of crushed stone bedding material on ledge rock, failure to compact backfill within the trench and above the top of the pipe, failure to hold trench width to the specified minimum and failure to shape the bedding to fit the bottom of the pipe.

Cahaly recommended closer supervision and inspection with conservative design to avoid this sort of situation.

Miles N. Clair, president of Thompson & Lichter Co., Inc., Brookline, Mass., consulting engineers, said concrete pipe has given excellent service under a wide variety of conditions. Where failures have occurred, he said, inadequate planning, poor specifications and improper installation generally were to blame.

Clair said many specific problems could be solved by mixture and material modification at the plants. He recommended membrane curing as an improvement over steam curing, water-spray curing and saturated-cover curing.

Officers elected at the meeting were: A. W. G. Clark, president; Harry W. Heath, E. F. Bespalow and Hugh P. Ford, vice presidents; David A. Decker, secretary, J. D. Mollendorf, treasurer.

Construction Workers Lead:

Labor's Drive for New Federal Legislation

An AFL building trades steamroller with 1,400 rank-and-file craftsmen aboard hit the nation's capital last week. They came to ask Congress to ease federal restrictions on their unions—and departed feeling they had scored a victory.

In what was officially billed as the biggest legislative conference ever held by the building trades, representatives from 19 craft unions in 45 states converged on Washington and Capitol Hill to lobby for amendments to three labor laws.

Before the four-day session ended, most Congressmen had talked with squads of construction workers. Union members learned how to discuss technicalities of the complex labor laws in a first-day briefing by AFL leaders.

What the unions want are higher wages and fewer curbs for construction labor. In some cases, their demands are backed by the Administration; in others, they can claim only limited support—mostly from Democrats.

What they'll get from the session, estimated to cost up to $500,000, is an open question. The craftsmen were well received by their Congressmen and enthusiastic about the prospects for the success of their program.

Building trades chief Richard J. Gray told a jam-packed, last day's meeting that he thought they might win some changes in the Taft-Hartley Act. Michigan Sen. Patrick V. McNamara and Rep. John E. Fogarty of Rhode Island, both Democrats, promised the delegates that they'd work hard to push the program through Congress.

The sessions, a combination of strategy meetings and pep-talk rallies, were conducted in as private an atmosphere as Gray could arrange. He barred the press—against the advice of his associates. But he couldn't prevent the zealous delegates from talking outside the meetings.

• **Taft-Hartley**—It is a good bet that only a small part of the union program will succeed. Probably the most ambitious goal is the drive to outlaw the 18 state right-to-work laws that bar union shop contracts by an amendment to the Taft-Hartley Act.

There's no chance of winning on this issue. Even the other Taft-Hartley proposals—all backed by President Eisenhower—are almost sure to fail. On these, the building trades want permission to make contracts with employers requiring membership in the union seven days after a worker has gone on the job. They also want permission to strike construction sites, even though neutral employers might be affected. That now is interpreted as an illegal secondary boycott.

On two laws now dealing strictly with government construction, the building trades want to extend the government's authority to all building in which the government has a hand. Currently, only direct federal construction comes under the wage determination provision of the Davis-Bacon Act and the overtime pay rules of the eight-hour laws.

The strategy is obvious. The AFL unions want to make certain that union wages are paid for work on any expanded school or roadbuilding programs which would be financed primarily by the states. The extended coverage also would include all FHA and VA housing as well as the multi-billion-dollar rural electrification program.

There are two other union demands that would affect construction wage rates. One would require the Secretary of Labor to include in wages for federal construction such fringe benefits as union-negotiated vacation pay, travel time, subsistence allowances as well as health and welfare and retirement costs. The other would put enforcement powers in the hands of the Labor Secretary, instead of the federal agency that grants the contract.

• **Prospects**—The best bets for passage at this session of Congress are the proposed changes in the eight-hour laws. Backed by Labor Secretary James P. Mitchell and introduced by Republicans on the Senate Labor Committee, this bill would require payment of overtime rates for work after an eight-hour day and 40-hour week on all construction involving the government—including construction backed by government loans and mortgage insurance. This is designed to prevent paying at straight time rates for a six or seven-day week—a current practice of a few contractors.

The building trades played this provision down at the conference in an apparent desire to keep any political credit away from the Administration. An appeal by Republicans for Democratic support in introducing the bill failed.

• **Other reactions**—What some private organizations say about the building trades drive:

• The National Association of Manufacturers says industry's two main objections are the "unwarranted extension" of the government into employer operations and the "unnecessary and unjustified" burden of additional records that would have to be maintained.

• Labor Secretary Mitchell, who administers Davis-Bacon and the eight-hour laws, favors the idea of extending coverage to all government-aided construction. But, in setting the rates of prevailing wages, his department opposes the inclusion of high-priced fringe costs which in some areas—particularly in the South—are not prevailing contract provisions.

Mitchell also is not enthusiastic about taking over enforcement authority, primarily because the cost would be so high. He feels his current efforts to ride herd on the contracting agencies is achieving results.

• Contractors are concerned about the proposed Davis-Bacon Act changes, but the eight-hour law amendments are considered not-too-important. The principle of overtime payments for work after 40 hours is already generally accepted.

The Associated General Contractors feels the fringe issue in Davis-Bacon determinations would hike wage costs where these fringes had not been negotiated in union contracts.

Coverage of the latter law would be extended to FHA and VA single family homes, but the National Association of Home Builders, noting the overtime rate is already in effect in most private construction, is not too concerned.

• **AGC's reply**—If the building trades drive to change Davis-Bacon gets going in Congress, the AGC is expected to counter with a demand for court review of wage determinations. This check is not in the current law, but one official says, "If the unions want to open the law to subject contractors to such costs, we are going to ask for court review." If this happened, it could stultify operation of the law through legal tie-ups.

The building trades estimate that extension of laws to all federally supported construction would more than triple the projects coming under government wage authority. According to union officials, the laws covered $4.5 billion of new construction in 1954. An additional $9.2 billion would have been affected if the extensions were in effect.

State Legislatures

Indiana adopts new water use law; Georgia sets up rural roadbuilding agency

Passage of an Indiana law modifying the riparian doctrine of surface water rights and creation of a rural roads authority in Georgia highlight the accomplishments of the completed legislative sessions in these two states.

Montana legislators ended their session by voting increased highway user taxes—the first of many states scheduled to take such action.

Here, in brief, are the principal measures of interest to construction passed by the three legislatures:

• **Indiana**—The new water use law in Indiana is significant for a non-arid state and is likely to have a counterpart in several states east of the Mississippi. It declares surface waters to be public waters, subject to regulations beyond those based on conventional riparian rights.

As a means of implementing its new doctrine, the legislature authorized a two-year study of water rights laws. Findings, to be reported to the 1957 General Assembly, will be used as a guide in developing further regulatory legislation.

The Indiana Flood Control and Water Resources Commission was authorized to make several hydrology studies. It will cooperate with Army Engineers in connection with planning of three proposed reservoirs costing $30 million on the upper Wabash River in north central Indiana to reduce flood crests at Huntington, Wabash, Peru and Logansport and to protect extensive farming areas. Still other surveys will be made on the Kankakee and Calumet River watersheds.

• **Georgia**—Goal of Georgia's rural roads authority is to pave 16,000 mi of county roads during the next four years. Enabling legislation calls for a five-man authority, empowered to issue up to $100 million in revenue bonds.

The State Highway Department will determine the roads to be paved on the basis of priority lists submitted by county commissioners and local legislators. Counties are required to furnish rights-of-way to the State Highway Department at no charge and to agree to maintain the roads paved by the authority.

Roads improved by the authority will be leased back to the State Highway Department. Rental payments made by the state to retire the authority's bonded indebtedness will come from state funds normally allocated to the counties for contract work.

A revision of Georgia tax laws makes contractors liable for state sales taxes on materials and equipment used in fulfilling a contract. Previously, contractors were not considered "consumers" in a legal sense and hence not liable for sales taxes on property used in their work.

Georgia legislators abolished the state's toll road authority, which was created in 1951 but had never functioned except as a sort of study or advisory group. But, the legislators created a farmers market authority for the purpose of building a $4.5-million market in Atlanta.

• **Montana**—Increased highway user taxes in Montana are calculated to raise an additional $3 million to match federal allocations for highway work. The gas tax was boosted from six to seven cents per gallon and the tax on diesel fuel was raised from six to nine cents per gallon. Gross vehicle weight taxes were increased slightly.

Engineers Cut Estimates Of Missouri Dam Costs

Army Engineers have reduced the estimated cost of the four Missouri River dams by $6.4 million.

In an annual revision prepared for the Bureau of the Budget, the total cost of the dams—Gavins Point, Fort Randall, Oahe and Garrison—was estimated at $848 million rather than the $854.4-million figure of 1954.

Decreases were listed for three dams, and the estimate was hiked for the fourth.

The current cost estimate for Garrison in North Dakota, now 80% complete, is $279 million, a reduction of $10.9 million from last year's figure of $289.9 million. Oahe now is estimated to cost $321 million, an increase of $15 million from the 1954 total of $306 million. Fort Randall is expected to cost $195 million, compared with an estimate of $198.5 million last year, and Gavins Point costs are estimated at $53 million, a reduction of $7 million from last year's $60 million.

In addition, an increase was listed for Montana's Fort Peck Dam, for which a second powerhouse is in the planning stage. The plant is estimated at $24.4 million an increase of $1 million from the $23.3-million figure of a year ago.

On the dams for which reductions were listed, all major contracts have been let and the structures themselves are nearing completion. The hikes were on projects on which much work is still to come—the Fort Peck work is in the planning stage, Oahe is approximately 10% complete.

Engineers in Unions

NSPE committee report takes firm stand against unionization of engineers

Engineers in industry can obtain relief for the ills of which they complain—without resort to unionization—if management will cooperate in improving the salary and working conditions of its various engineering employes.

That is the conclusion of the Engineer-in-Industry Committee of the National Society of Professional Engineers in a 128-page report which supports the NSPE stand against collective-bargaining unions for engineer employes.

"Our studies have led us to the conclusion that there is no need for dividing engineers and managements into separate armed camps," the committe said. Its study suggests 46 specific areas for improving engineer-management relationships.

The issue of unionization of engineers has been debated for many years, but the committee found that the recent emergence of a National Federation of Engineering Unions dedicated to the unionization of the engineering profession has brought "the long-smoldering controversey into the open as never before."

The engineers' unions have promoted the enemy concept between employe engineers and management engineers despite the fact that it is "a basic premise of any profession that it is one profession," the report says.

The report gives an account of specific engineering union activities and attitudes with respect to strikes, arrangements with trade unions, loss of leadership to non-professionals, advocacy of compulsory union membership and efforts of trade unions to organize professional employes.

"The most common complaint is that engineers are underpaid," the report said.

Some management officials fear that the non-bargaining professional associations are only one step away from a union-type operation. It may take "only a few hot-headed leaders to change the type and philosophy of the organization," the committee said in its report.

Members of the Engineer-in-Industry Committee are: Robert A. Blackburn, Pittsburgh, chairman; E. H. Wickland, Pitman, N. J.; T. E. Casselman, Waban, Mass.; George Steven, Kenmore, N. Y.; Wayne E. Ault, Youngstown, Ohio; Louis J. Larson, Milwaukee; and D. F. Langenwalter, Altamont, N. Y.

Open Tunnel Bids

Merritt-Chapman & Scott is low at $29.9 million on Baltimore tunnel job

Merritt-Chapman & Scott Corp., New York, was apparent low bidder for construction of the 1.7-mi Baltimore Harbor Tunnel.

The New York firm bid $29.9 million—$1.7 million below the engineering estimate by Singstadt & Baillee and J. E. Greiner Co., the consulting engineers for the project.

Cost of the entire project, including 15 mi of high-speed approach highways, has been estimated at $130 million. Groundbreaking for the project is scheduled for about April 1. Present plans call for completion by Dec. 1, 1957.

The low bid is subject to study for compliance with specifications before award of the contract is made. The Maryland State Roads Commission will meet within a few days to make the award.

The Merritt-Chapman & Scott bid listed its subsidiary, the New York Shipbuilding Co., of Camden, N. J., as subcontractor for all of the steel fabricating work.

Second low bid of $30.1 million came from a combine of J. Rich Steers, Inc., Morrison-Knudsen Co., Inc., Johnson, Drake and Piper, Inc., and Massman Construction Co.

Third lowest bid of $31.3 million was from Tidewater Construction Corp., Peter Kiewit Sons Co., Condon-Cunningham Co., Ben C. Gerwick, Inc., Maclean-Grove and Co., and Arthur A. Johnson Corp.

Fourth bid of $32.7 million came from the Free State Tunnel Builders, New York; Brown and Root, Inc., Houston, Tex.; Raymond Concrete Pile Co., New York; Charles H. Tompkins Co., Washington; and Baltimore Contractors, Inc., Baltimore.

Highest bid of $33.4 million was submitted by Frederick Snare Corp., New York; Mason and Hanger-Silas Mason, Inc., New York; Corbetta Construction Co., Inc., New York; and Baldwin-Lima-Hamilton Corp., Philadelphia.

New York City to Start $140-Million Water Project

New York City has appropriated $85.3 million to get construction started this year on the $140-million Cannonsville, N. Y., dam and tunnel, key project in the city's program for developing a Delaware River water supply system.

Cannonsville will impound water on the Delaware's West Branch and transmit it to existing works via a 44-mi-deep rock tunnel.

First stage of the program was completed with construction of dams on Roundout Creek, a tributary of the Hudson River, and on Neversink River, a tributary of the Delaware. Second stage of the program, now nearing completion, is at Downsville, N. Y., where the Pepacton Dam will impound water from the West Branch of the Delaware.

Cannonsville, the third and final stage of the program, is calculated to insure a water supply adequate to the city's needs up to the year 2000.

It took a U. S. Supreme Court decision on Delaware River water rights to give a final clearance for the project (ENR June 17, 1954, p. 68).

Utility May Start Building Hydro Project This Year

Pacific Gas & Electric Co. may begin construction this year of its proposed $75-million Kings River hydro project in California.

The company announced it has "substantially completed" agreements with irrigation interests on water storage and use. These agreements are expected to clear the way for final approval of the project by the State Public Utilities Commission and licensing by the FPC.

The plan for development of the North Fork of the Kings River calls for construction of three dams—Helms, Wishon and Haas—and expansion of the existing Balch after-bay dam to increase its height from 32 ft to 158 ft.

Three new hydro plants and an addition to a fourth also would be built. Ultimate capacity of the improvements would total 274,000 kw.

To obtain FPC approval for the project, PG&E had to agree to compensate local water users for loss of water that will be stored and to pay the Corps of Engineers for the use of Pine Flat Dam as a re-regulating reservoir.

Pittsburgh, County Form Joint Sanitary Authority

Allegheny County Commissioners have agreed to join the city of Pittsburgh in a joint sanitary authority to build an $87 million sewerage system and treatment plant.

The city will have three representatives on the board, and the county will have two men to speak for the 64 smaller municipalities.

Pittsburgh's Mayor David L. Lawrence has guessed that the total cost of the project may hit $100-million before it's in operation.

News Briefs . . .

Road Survey

The firm of Palmer and Baker of Mobile, Ala., and New Orleans, La., has begun an engineering survey for the 86-mi, $100-million South Louisiana Turnpike. A traffic survey of the route is scheduled to begin April 1. The proposed toll road would cut through the Atchafalaya swamps and save motorists 40 mi between Lafayette, La., and New Orleans. If the surveys are favorable, construction and financing will be handled by a joint commission composed of representatives of the five parishes along the route.

Chrysler Builds

Contracts for a multi-million-dollar expansion of Chrysler Corp. engineering facilities in Highland Park, Mich., will be awarded beginning next month. Major projects in the expansion program are a three-story building with 182,111 sq ft of floor space, an addition to the present three-story body design building and a major addition to the dynamometer laboratories. Completion is scheduled for March 1956.

Highway Bonds

A state constitutional amendment authorizing a $54-million highway bond issue will be submitted to the voters in North Dakota at the June 1956 primary election. The proposed amendment was given final approval by the state legislature this month.

Beautiful Buildings

The Wisconsin Supreme Court has upheld an ordinance giving a review board the power to pass judgment on the exterior architectural appeal of proposed buildings and homes in Fox Point, Wis., a suburb of Milwaukee. The ordinance allows the building board to examine blueprints and recommend issuance or denial of building permits.

Gasoline Tax

Nebraska has completed action on a law continuing the state gasoline tax at 6 cents a gallon for four more years. The law will provide funds to carry out a $35-million highway construction program to improve 900 mi of road by July 1, 1957. The 1953 legislature increased the state's gas tax from 5 cents to 6 cents for two years. The tax would have reverted to 5 cents in May.

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CITY BY CITY

Girder Failures Bring About New Bracing Requirements

Tapered steel girder failures—such as this recent one in East Los Angeles—have resulted in new rulings by both the Los Angeles County and Los Angeles City Building Departments. The rulings are aimed at providing better lateral bracing during construction as well as for the completed building. New requirements: Tapered steel girders must be braced at not more than 30-ft intervals and braces must be capable of resisting a 1,000-lb thrust at either top or bottom flange.

The Ideal Community

Detroit—Under a 10-year, $150-million program an "ideal" community will replace wartime housing near Detroit's Willow Run Airport.

Willow Development Co. already has purchased the site—some 1,600 acres formerly known as Willow Village—at a cost of around $1.5 million.

Plans call for construction of 5,000 single-houses on large lots, curved streets, recreational facilities, schools, churches and sites for business and light industry. Some multiple dwellings also will be built.

The former site owner, Ypsilanti Township, will continue to control the temporary dwellings until all these units are razed. The agreement between the development company and the township includes a 3½ year building schedule to provide new homes for the present tenants.

1970 Water System

Seattle—A $48-million program for expanding Seattle's water system during the next 17 years has been recommended to the City Council.

Prompting expansion plans is an expected increase in population from the present 585,000 to 800,000 in 1970.

Seattle's Water Superintendent reports that the program would add 110 mgd of water by 1970, bringing the total supply to 310 mgd. It would involve further development of Cedar River, now the city's only source of water, as well as bringing in water from the Tolt River. Pipelines, reservoirs, elevated tanks and distribution lines would be needed to service areas outside the present city limits.

The program would call for the first increase in water rates in many years. And it would mark a departure by the debt-free Water Department from its previous practice of financing betterment projects out of current revenues.

Expansion would necessitate a series of bond issues beginning with $975,000 next year and increasing annually to some $11.1 million in 1959. After that annual issues would decrease gradually to $2.9 million in 1969. The final issue in 1970 would amount to $3.8 million.

(City by City continued on page 30)

MADSEN *Equipment that Serves*

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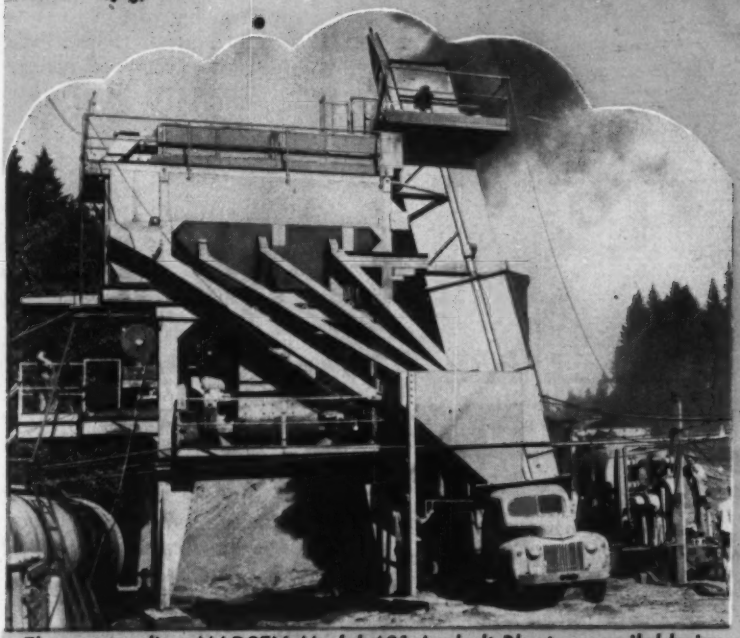

The outstanding MADSEN Model 481 Asphalt Plant... available in 4000-lb., 5000-lb. and 6000-lb. capacities to meet your requirements

More today than ever before, the asphalt paving industry is **buying MADSEN!** Among the many contracting firms recently purchasing the outstanding MADSEN Model 481 is the Baldwin Contracting Company, Inc., of Marysville and San Rafael, Calif. This contractor has selected the MADSEN Model 481 6000-lb. plant. Since its introduction approximately two years ago, the acceptance of the MADSEN Model 481 Asphalt Plant has been nothing less than sensational. Today, this asphalt plant is recognized as the greatest single engineering advancement in bituminous mixing plants. More than 25 new outstanding features are built into the Model 481 to make it easier and more economical to operate and maintain, and to give it a greater money-making potential for its owner. Some of these features are shown below. For the complete story on the MADSEN Model 481, write for Bulletin No. 800.

FEATURES

- Oversize capacity weigh-box with air-operated gate, 4-point lever suspension, roller-mounted so that it may be quickly rolled out of the way for field maintenance.
- MADSEN Asphalt Pressure Injection System (Patented) which pumps asphalt into the mill in 5 to 7 seconds!... the fastest known method of getting every drop of asphalt into the mill.
- All air-operation of bin gates, asphalt pressure injection and mixer gate.
- Finger-tip control of weighing and mixing levers centrally located for maximum efficiency.
- Unit construction designed for easy stacking in factory-matched unit sections, factory-fitted for quick field erection.

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Construction Equipment Division

Manufactured by

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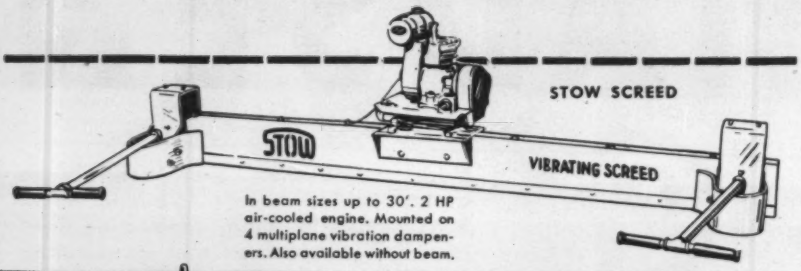
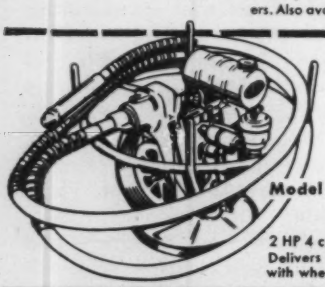
Concrete facts about Concrete Vibrators and Screeds

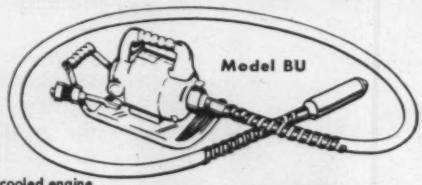


In beam sizes up to 30'. 2 HP air-cooled engine. Mounted on 4 multiplane vibration dampeners. Also available without beam.



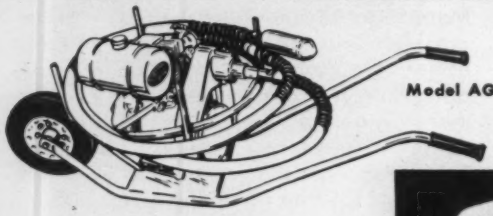
Model BG

2 HP 4 cycle air-cooled engine. Delivers 6000 to 9300 Available with wheelbarrow mount.



Model BU

2 HP at 9000 VPM 115 V. AC or DC



Model AGW

4½ HP 4 cycle air-cooled engine. Mounted on wheelbarrow for easy maneuverability. Delivers 6000-9300. Available without wheelbarrow.

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CITY BY CITY

Roadblock Removed

Cumberland, Md.—A roadblock to construction of a $10-million, 6-mi expressway across the city was removed recently when a taxpayer's suit was dismissed in circuit court.

The suit—brought by a property owner in an area to be crossed by an elevated section of the expressway—sought to invalidate a contract between the city and the Maryland State Roads Commission for building and financing the project.

The court ruled that (1) Cumberland's City Council did not exceed powers given it in the city charter when it entered into the agreement, and (2) the financing part of the contract is definite enough to pass legal tests even though plans are preliminary and do not show exact location of the expressway. These were the main grounds on which the suit was based.

As a result of the court decision, the State Roads Commission reportedly will go ahead and sign the contract with the city and put engineers to work on detailed plans and blueprints.

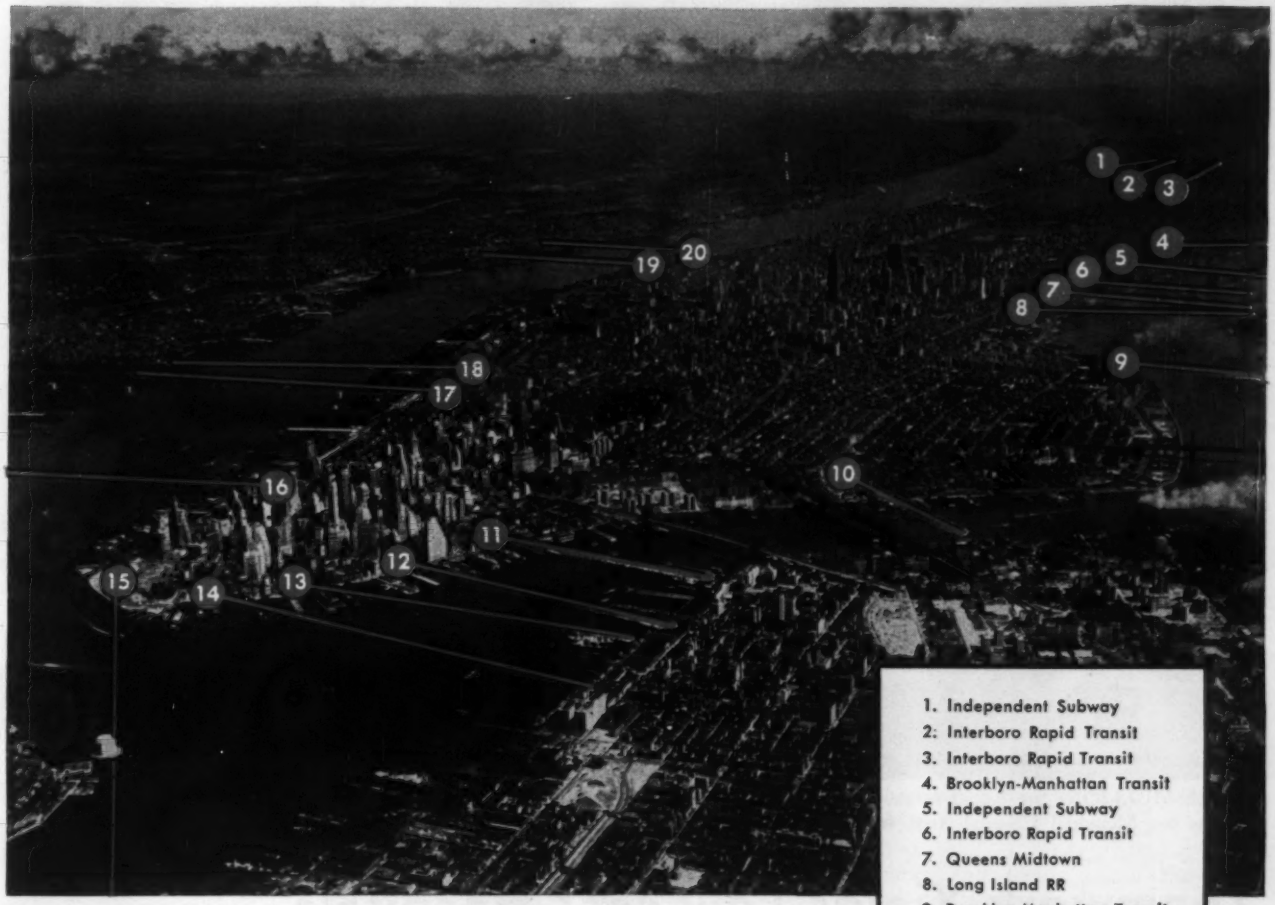
At present Cumberland's downtown traffic is a serious bottleneck on U. S. Route 40 and other state roads. The expressway, six lanes wide in some sections, would cross the city from Route 40's present entry point in the northeast corner. It then would bend across the business district to a new connection with Route 40 west of the city.

Unpopular Housing Code

Phoenix—Protesting homeowners have forced Phoenix to re-examine its new housing code.

The city drafted the housing ordinance in an attempt to adopt a code meeting minimum standards required for federal aid under the urban renewal program (ENR Jan. 27, p. 32). But enforcement of the new requirements brought floods of protests from homeowners who maintained that they had no assurance they wouldn't "lose the roof over their heads." Many seem to feel that their inability to raise money to make repairs would make them victims of a harsh ordinance.

Housing requirements under fire include: 7½-ft ceilings for sleeping rooms; a minimum of 125 ft of floor space for the first occupant and 75 ft for each additional occupant; hot and cold water plumbing; a sink, flush water closet, lavatory basin and bathtub.



1. Independent Subway
2. Interboro Rapid Transit
3. Interboro Rapid Transit
4. Brooklyn-Manhattan Transit
5. Independent Subway
6. Interboro Rapid Transit
7. Queens Midtown
8. Long Island RR
9. Brooklyn-Manhattan Transit
10. Independent Subway
11. Independent Subway
12. Interboro Rapid Transit
13. Brooklyn-Manhattan Transit
14. Interboro Rapid Transit
15. Brooklyn Battery Tunnel
16. Hudson & Manhattan RR
17. Holland Tunnel
18. Hudson & Manhattan RR
19. Pennsylvania RR
20. Lincoln Tunnel

Underground Life Lines of Manhattan

Third Lincoln Tube now brings total to 41... drilled with Ingersoll-Rand equipment

TWENTY vehicular tunnels now link Manhattan with the mainland, New Jersey and Long Island. Each tunnel consists of two separate bores. A third bore now being added to the Lincoln Tunnel will bring the total to 41. It will also keep Ingersoll-Rand's 79-year-old record intact. For here, as on all other Manhattan tubes since the very first one, Ingersoll-Rand drills have been used on the rock work.

The western end of this new Lincoln tube calls for driving through rock approximately 750 ft. of 34 ft. circular tunnel. It is being driven in two sections from the bottom of a shaft 130 ft. deep. After careful consideration of all modern tunnel driving methods, I-R Jackdrills and 1⅜" Carset Jackbits were selected for driving the top heading. The bench will be driven by Ingersoll-Rand Wagon Drills.

When it comes to drilling rock, remember that I-R can supply everything you need from the bit all the way back to the compressor. Let your Ingersoll-Rand representative help plan your next rock job. His experience may be of great value to you.

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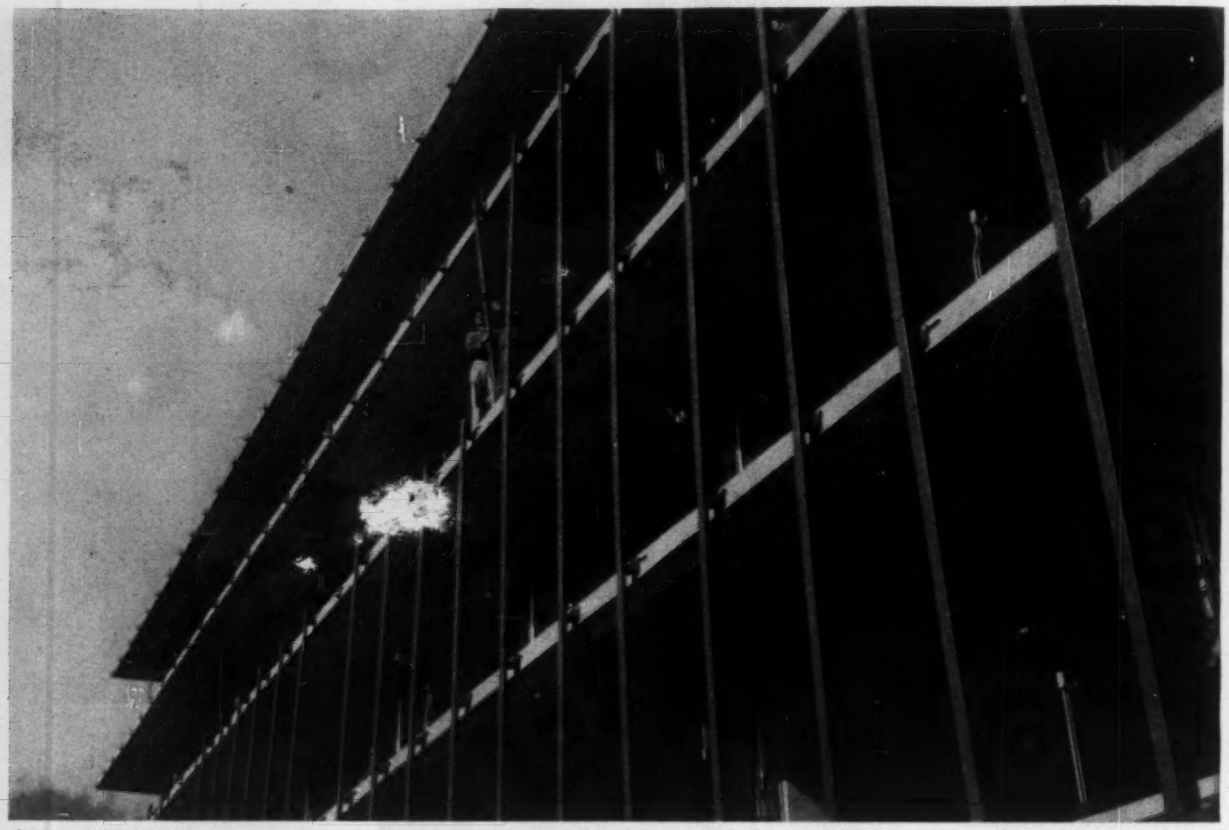


STEEL MULLIONS are bolted to the ends of cantilevered flat-plate concrete floors to receive a new type curtain wall developed for the ten Memorial Hospital Assn. hospitals in Kentucky and West Virginia.

Teamwork Yields Low-cost Hospitals

Client, architects, engineers, equipment manufacturers and a contractor, take advantage of cost-saving opportunities in building ten hospitals simultaneously, try out new ideas

Frederick S. Merritt
Associate Editor

Ten hospitals with facilities of the highest caliber are being constructed in the heart of the southern Appalachian coal region at an average construction cost of only $16,000 per bed, $23 per sq ft. This relatively low cost was achieved by cooperative planning by the designers and the general contractor, coordinated by the single owner of all ten projects, the Memorial Hospital Association of Kentucky, Inc.

Distributed over a distance of 165 miles (300 miles by road) in the rugged mountain area where Kentucky, West Virginia and Virginia meet, the hospitals vary in capacity from 50 to 200 beds and include a central supply center at one location. Also, nursing schools and dormitories had to be built in conjunction with several of the projects.

The main buildings ranging in height from two to six stories, are of flat plate construction—made of excellent quality concrete though available labor was mostly unskilled. They are enclosed with brick and prefabricated window walls containing metal sandwich panels.

The hospitals are intended primarily for beneficiaries of the United Mine Workers Welfare and Retirement Fund, which is financing the projects. The Memorial Hospital Association was formed to plan, build and operate the facilities.

• **The design team**—Three architectural firms were engaged to design the projects. But to take advantage of the cost-saving opportunities presented in building ten hospitals at a time, the contract required the designers to work together to standardize materials and equipment for all the jobs.

Early in the planning stages, a general contractor, the J. A. Jones Construction Co., was chosen and made a member of the planning team. Not only did this add to the team the benefit of the contractor's construction experience and knowledge of costs but it also was advantageous to the owner in enabling construction to begin sooner. Jones started foundation work before working drawings were fully completed.

The team programmed seven hospitals with 50 to 90 beds and three larger, central hospitals with more extensive facilities. One of the architects, Isadore Rosenfield, of New York City, was assigned the design of a 190-bed hospital at Beckley, W. Va. Another firm Sherlock, Smith & Adams, Montgomery, Ala., was given a southern group consisting of four small hospitals and a central 200-bed facility at Harlan, Ky. And the third, York & Sawyer, New York City, was awarded a northern group of three small hospitals and a 140-bed center at Williamson, W. Va., including the central supply facility at that location.

• **Low operating costs sought**—This service center is expected to cut operating costs for all ten hospitals. While completion of some elements will be postponed, the center may ultimately include administration

CURTAIN WALL consists of one-story-high frames (left), ready for glazing, with porcelain-enameled panels in place. Metal plate is attached on the inside (right) to cover the connections of the wall frames to each mullion.

headquarters and centralized purchasing, warehousing, laundry, manufacturing pharmacy, dental laboratory and some central sterilizing and food processing, easing the load on the other hospitals.

This is only one example of the many ideas developed by the design team for cutting not only construction costs but operation and maintenance costs as well. Another major objective was to eliminate excessive duties of technical personnel so they would have more time for patients.

Toward this end, the team developed a central supply system for each hospital to reduce the administrative load on registered nurses. A day's complement of supplies will be delivered to nursing floors on carts. Serving as storage units during the day, the carts will be replaced during the night with full units. With this system, the nurses will not have to keep inventory, the job being handled by a central issue clerk or dispatcher. There also will be a saving in storage equipment at nurses' stations and in the number of times supplies have to be handled.

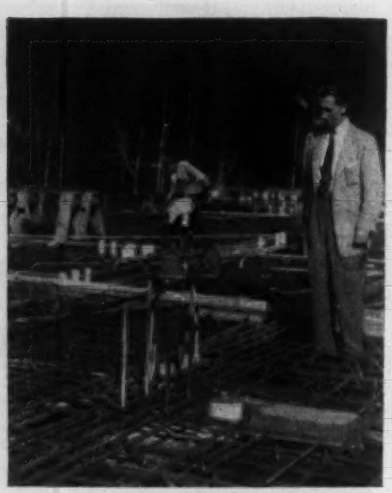
MAP indicates that the mountainous terrain where the ten hospitals are located makes the road distance between hospitals nearly twice the air distance.

In addition to the carts the nurses' stations will be served through dumbwaiters and—in the larger hospitals—by vertical trayveyors. Laundry and waste chutes will simplify the removal of some materials from the work areas. A letter drop, pneumatic tube or intercommunication system will speed requisitions, when necessary, to the dispatcher. Food trays will be made up on an assembly belt in the kitchen and delivered to each floor on a vertical conveyor or by dumbwaiter, eliminating the need for a pantry on every floor.

• **Efficient layouts**—Despite the emphasis on cost cutting, the hospitals are well planned both for efficiency of operation and comfort and convenience of patients. Emergency entrance and rooms adjoin the main entrance lobby so that they may be easily located and first aid administered promptly. Also the admitting office, waiting rooms, outpatient treatment facilities and pharmacy are adjacent to the lobby.

On nursing floors, the nurses' stations are centrally located with respect to bedrooms, and nursing units are sized for efficient use of personnel. At Beckley, for example, nursing stations can serve 70 beds. To reduce walking for personnel and keep corridor space to a minimum, the beds in this hospital are grouped into two L-shaped units, with one leg of each unit lying along the service core, the other extended away from the station. Most rooms in this hospital are 6-bed wards, in the others 4-bed wards.

• **Mass buying saves money**—In addition to the savings achieved during the design stage, additional economies resulted from the contractor's efficient handling of construction. With all ten jobs run from a single centrally located office, Jones was able to save on administrative expenses and centralized accounting, purchasing and estimating. Lower bids were obtained from subcontractors by letting contracts for several hospitals in a group. And further economies were achieved by buying in large quantities. For



STRUCTURAL DETAILS DIFFER—Teamwork in design did not completely stifle individuality: For the northern group of hospitals, straight-bar reinforcing was employed at columns (shown at left being checked by A. W. Kanka, architect's representative for that group). For the southern group, steel-beam shear head was used at columns (shown in center being inspected by J. M. Manley, architect's representative for the group). At the right, the typical smooth ceiling obtained in all hospitals is studied by E. B. Lancaster, resident architect for MHA (left), and L. B. Leonard, the contractor's project manager.

example, solid-core doors were purchased at the same price as hollow-core doors. Also, the prefabricated window walls cost about half as much as they would have if ordered only for a single structure.

At the same time, Jones had to surmount the handicap of a high freight rate. Local materials had to be used wherever possible. Concrete aggregates, for example, had to be obtained from various sources to keep shipping distances to a minimum and consequently are not of equal quality.

• **Unusual labor situation** — Another problem Jones faced was a scarcity of skilled labor. The men hired had to be members of the United Construction Workers, a major branch of District 50 of the United Mine Workers. Many of them were experienced miners but were lacking in above-ground construction experience.

Jones was able to bring in some skilled labor, particularly foremen, from other areas. Though these men held cards in the American Federation of Labor, they had to join the UCW. This was not a hardship, since the initiation fee is low—about $5—and dues is small—about $2 per month.

What the contractor liked best about UCW men was their willingness to learn and to work. To some extent, these characteristics offset their lack of skill. But the jobs proceeded at a slower rate than with AFL labor. Nevertheless, total labor costs were about the same.

Another favorable condition attendant on the employment of UCW men was the lack of restrictions on assignment of men to crafts. A man could be shifted for example, from laborer to carpenter's helper to sheet metal worker, as needed. But he must be paid the prevailing wage for the craft assigned, and not less than he would earn at the trade for which he was hired. In many cases, the workers also benefited through steadier employment as a result of this flexibility in assignment.

Furthermore, there were no jurisdictional disputes. However, there were some difficulties with personnel that sought upgrading but lacked the necessary skills for the grade to which they aspired. On some of the projects, this problem was licked by setting up a committee of skilled UCW men from each of the crafts to pass on the ability of personnel of questionable skill.

• **High-quality concrete**—With the assistance of Froehling & Robertson, of Richmond, Va., on concrete design and testing, and employing job-mixed concrete, Jones was able to produce concrete of high strength and to turn out flat-plate construction of excellent appearance. The concrete was required to have an ultimate compressive strength in 28 days of 3,750 psi. Actually, cylinders tested at 4,000 to 6,000.

The mix contained 6 bags of cement and about 35 gal of water per cubic yard. About one-half bag of cement over what was needed to meet design requirements was incorporated per cubic yard as a precaution because of lack of laboratory control. This was not entirely an additional expense because the cost of a control engineer was eliminated. Generally, a cement-dispersing agent was added to the mix. In hot weather, a set-retarding admixture sometimes was used instead. Floor and roof concrete were carefully cured with wet sand placed on building paper.

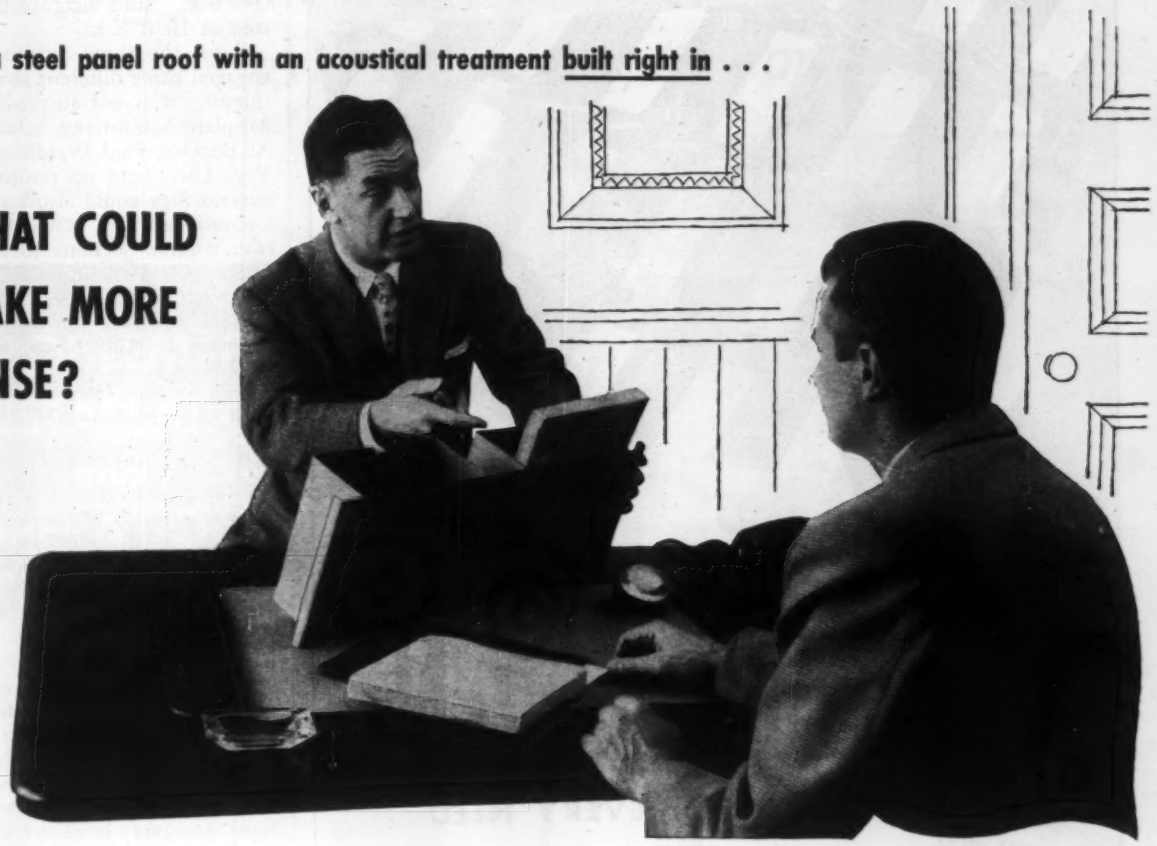
• **Flat-plate designs**—Typical flat-plate floors are 7 in. thick and are supported on columns spaced 15 to 20 ft. apart. Around the exteriors where prefabricated wall panels are used, the floors cantilever out 3 ft, so that the columns do not interfere with wall con-

What the Hospitals Cost

Project	No. of Beds	Cost per Sq Ft	Cost per Bed
Beckley	190	$20.46	$13,249
Man	80	25.05	17,375
Williamson	140	22.79	14,786
Pikeville	50	26.54	22,158
McDowell	60	27.61	19,358
Hazard	90	24.33	17,497
Whitesburg	90	23.16	18,070
Wise	60	25.13	19,554
Middlesboro	80	23.80	18,177
Harlan	200	19.25	12,852
Average	1,040	22.92	16,005

Here's a steel panel roof with an acoustical treatment built right in . . .

WHAT COULD MAKE MORE SENSE?



If you're looking for a really practical acoustical treatment for your new classrooms, gym or auditorium, look no further! For these Fenestra* Acoustical-Structural Building Panels form a beautifully finished structural ceiling, noncombustible acoustical treatment and a joist-system support for finished roofing—*all in one!*

No acoustical material has to be pasted on the ceiling surface. You pay no bills for special trades or extra labor. Maintenance washing or painting won't affect the acoustical efficiency. Bumps or knocks can't hurt this ceiling. And if your building has a second floor, your Fenestra ceiling forms a strong solid subfloor for rooms above.

This combination acoustical-structural ceiling goes up *fast.* The panels lock together simply and quickly, saving days of labor, giving you substantial cost savings. To see how much sense it makes in the building *you're* planning call your Fenestra Representative. And do it *before* your plans are on paper! Or write to Detroit Steel Products Company, Dept. ER-3, 2286 E. Grand Blvd., Detroit 11, Mich.

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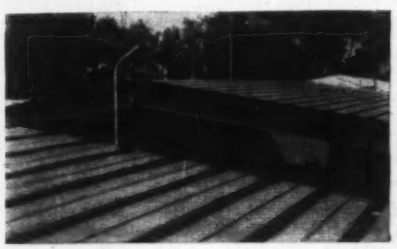

PANELS are laid over the rigid steel frame during course of erection. It's a construction method that really pays off. Be sure to investigate *before* you plan your next building!

ACOUSTICAL PANELS in Willard Elementary School, Willard, Mo. *Architect:* I. Dale Allmon, Springfield, Mo. *Contractor:* DeWitt Construction Co., Springfield.

ANOTHER INSTALLATION at Converse County High School, Douglas, Wy. *Architect:* Hitchcock & Hitchcock, Laramie, Wy. *Contractor:* Speigelberg Lumber & Building Co., Douglas.

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struction. Story heights are standardized at 10 ft 8 in.

Since the three architectural firms engaged three different structural consultants, it is not surprising that the flat-plate reinforcing schemes differ. At Beckley, Paul Weidlinger, of New York City, bent up positive moment bars so they could also serve as negative-moment bars, concentrating them over column sections to resist shear. DiStasio & Van Buren, of New York City, used straight bars at top and bottom of slabs for the northern group of hospitals. And the engineering staff of Sherlock, Smith & Adams employed straight bars in conjunction with a steel-beam shear head at columns in the southern group.

• **Prefabricated walls**—In general, to keep the height down and yet place windows in all bedrooms, the buildings are long and narrow. At the narrow ends, some are enclosed with 10-in. brick cavity walls. On the long sides, prefabricated metal sandwich panels and large areas of glass are used.

The metal panels are set like the glass in light-gage steel frames 5 ft wide and one story high, which are bolted between steel mullions to inserts in the concrete floors and roofs. Horizontal rails divide each frame into four sections into which opaque panels, fixed glass or operable sash may be fitted, as desired. The unit was developed by Truscon Steel Co.

The sandwich panels are 1⅛ in. thick. Containing 1-in.-thick glass-fiber insulation, they are faced on the exterior with porcelain-enameled steel and on the inside with light-gage steel. The window walls cost about $3 per sq ft in place, including screens, hardware and mullions.

Partitions between rooms will be expanded-metal studs with rock lath and plaster, or cinder-concrete block plastered. Ceilings will be plaster applied directly on concrete.

Dr. F. D. Mott is medical administrator of the MHA. Dr. John Newdorp, deputy administrator, and Roy Hudenberg, associate administrator, played a major role in planning phases and supervision of construction. E. Todd Wheeler, Chicago architect and hospital consultant, prepared the design program for the MHA and coordinated the planning of the design team. Edwin B. Lancaster is resident architect.

For York & Sawyer, A. W. Kanka is architectural supervisor; for Sherlock, Smith & Adams, J. M. Manley; and for Isadore Rosenfield, I. Kawasaki.

For J. A. Jones Construction Co., H. V. Appen is vice president in charge, L. B. Leonard, project manager, and J. E. Childs, chief engineer.

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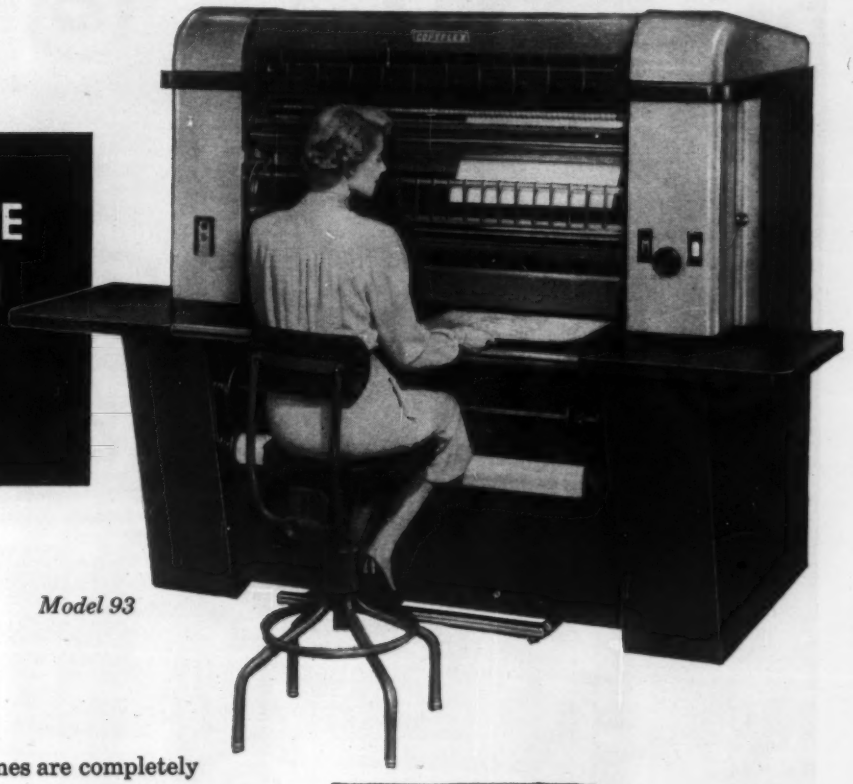

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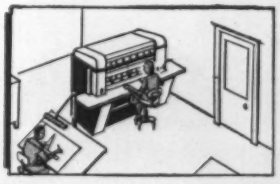

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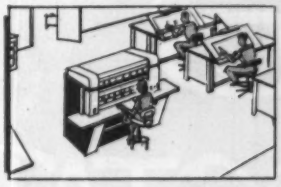

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Pump Station to Lift a River

Beargrass Creek Pumping Plant will protect Louisville, Ky., against floods moving up or down Ohio River tributaries

J. R. Hamilton
Engineer, Design Branch
Louisville District, Corps of Engineers

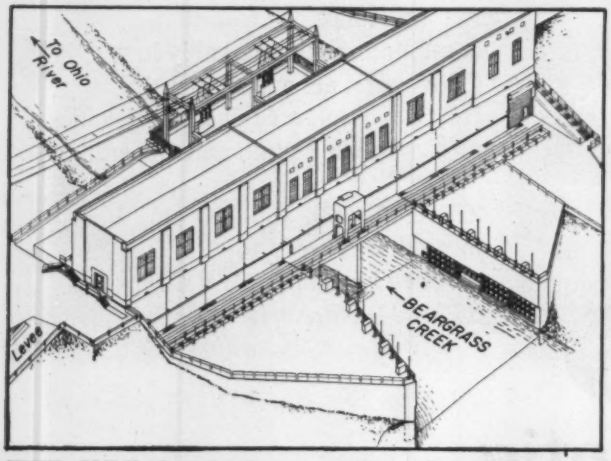
With completion of a $5 million pumping plant—second largest of its type in the world—Louisville, Ky., will be fully protected against Ohio River floods later this year. (Floods such as that which moved down the Ohio toward Louisville just last week. —Editor)

Beargrass Creek pumping plant, surpassed in size only by the Mill Creek plant in Cincinnati, Ohio, is the final element in a $26.7 million project begun at Louisville eight years ago. The city now has the protection of 12.8 miles of earth levee, 4.5 miles of concrete wall and 14 pumping plants—including Beargrass Creek, scheduled for June completion. No recurrence of the $54 million 1937 flood damage will then be possible.

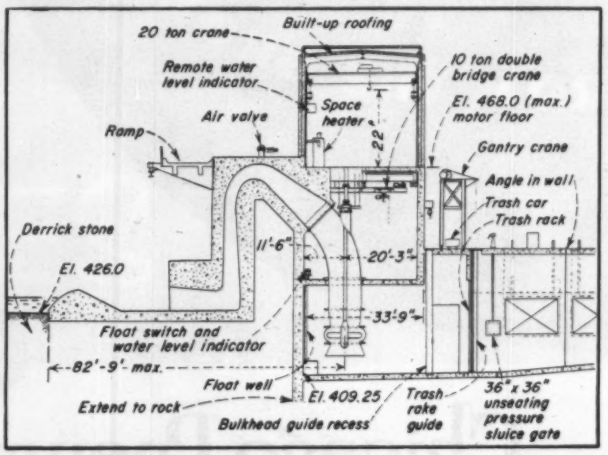
Beargrass Creek plant is both dam and pump station. With its gates down it will dam out the Ohio at flood stage. With its pumps operating it will lift Beargrass Creek flow up and over its gates, into the Ohio. The creek originates in the countryside, meanders through two Louisville city parks, passes residential and commercial districts and finally joins the Ohio. It drains 54 sq mi of area.

The pumping plant spans the creek and will house eight pumps in a concrete and brick structure 265 ft long, 211 ft wide, and with its roof about 77 ft above normal creek level. The floor of the plant is 11 ft below the normal creek level. All plant walls extend to rock, which dips on one side of the creek to about 30 ft below stream level. Extending walls to rock provides a stable foundation for the plant and also seals the area under the plant to prevent water from the river from entering the city by seeping under the structure.

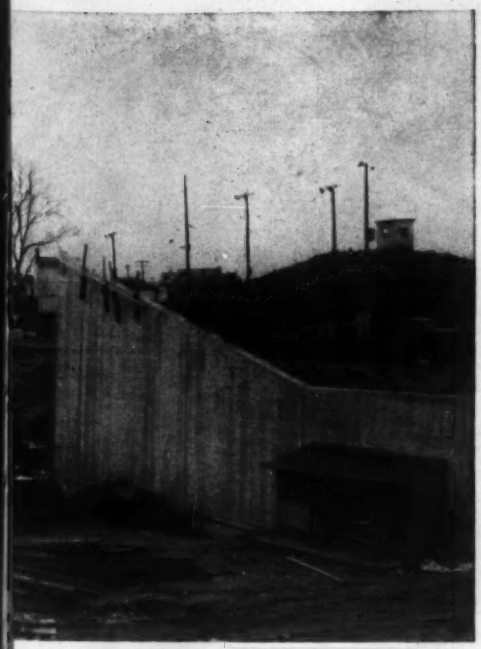
• **Three-part station**—The plant consists of three parts, designated as east, center and west monoliths. The east and west monoliths contain the



EXIT ONLY—Completed pump station will straddle creek at low water. In flood, gates will shut out Ohio River while pumps take entire creek flow.



TO REDUCE PUMPING HEAD—Pumps will discharge through siphon designed to cut down pumping head. Device will also prevent backflow when pumping stops.



NEAR RECORD SIZE—Key element in $27 million flood control scheme is second largest pumping station of its type. Capacity: 3 million gallons per minute.

pumps and motors, four each. The center monolith consists of two channels, 33 ft wide by 23 ft high, topped by a room housing the electrical switchgear and substation for providing power and control to the pumps. The two channels will pass normal flow of Beargrass Creek into the river; they will be closed in flood times by gates lowered from shore.

The west monolith will have four pumps, each 10 ft in diameter, powered by a 3,000-hp motor, and capable of pumping 960 cfs. Water will enter this structure through five openings 15 ft long by 10 ft high, equipped with gates to keep water out when the river is not at flood stage. Passing through the openings, flood water will pass through screens (approximately 92 ft long and 26 ft high) which will protect the pumps against debris.

Water will leave the pumps through a concrete tube passing up over flood level and then back to below low flood level, thus utilizing siphon action to reduce pumping head. Siphon breakers will prevent water from backing up when the pumps are stopped.

The east monolith is similar in construction to the west monolith and contains four pumps also. Two are like those in the west monolith; one is 10 ft in diameter with a 2,500-hp motor and a 600-cfs capacity; one 5 ft in diameter with a 600-hp motor and 100-cfs capacity.

The large pumps in the east and west monoliths will remove storm water and keep the creek below levels that will damage property. They cannot lower the creek level to that which is normal in non-flood periods. However, the two smaller pumps in the east monolith enable the creek to be maintained at normal levels except during severe rains. By using the divided structure, either half may be isolated and the other used for pumping purposes, thereby simplifying operation during light rainfall and also permitting one side to be operated while repairs are made to the other.

• **Huge capacity**—The total installed pumping capacity is 6,600 cfs or nearly 3 million gallons per minute. (Pumping at capacity, this plant can pump enough water in 2 days to supply the entire nation's normal consumption for one day—based on 50 gallons per day per capita, 1950 U. S. population.) To pump this quantity of water, the Beargrass plant has a motor horsepower installation of 21,100 hp.

In order that pumps, motors, gates, electrical controls, and transformers would be on hand when the structure was ready for their installation, these items were ordered about twelve months prior to start of construction of the plant proper. This equipment cost over $1.2 million. Pumps are being furnished by the Worthington Corporation and Fairbanks, Morse and Company, and the remaining electrical equipment by Westinghouse Electric Company and General Electric Corporation. Contract for the structure was awarded to C. F. Rule Construction Company of Nashville, Tennessee.

Construction of the plant required that Beargrass Creek be diverted from its normal channel during the early phase of construction. A cellular cofferdam formed one side of the relocated channel. The top of the cofferdam was about 20 ft above normal water level to provide protection of the working area during minor floods.

In addition to building the pumping plant proper, it was necessary to relocate a 36-in. sanitary sewer where it passes adjacent to the plant structure; to construct 700 ft of 8-ft 6-in. concrete sewer together with diversion and flood gates to connect a trunk sewer to the pumping plant; and to construct earth levee at both ends of the plant to complete the dam across Beargrass Creek and connect it to portions of the levee already built.

Beargrass Creek Pumping Plant was authorized under the Flood Control Act of 1938 and has been designed and built by the Louisville District, Corps of Engineers. Col. William D. Milne is District Engineer. S. M. Bailey is chief of the engineering division.

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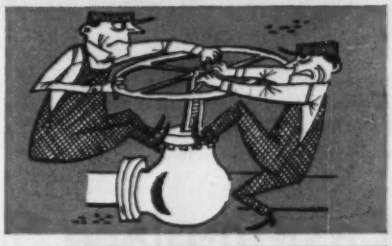

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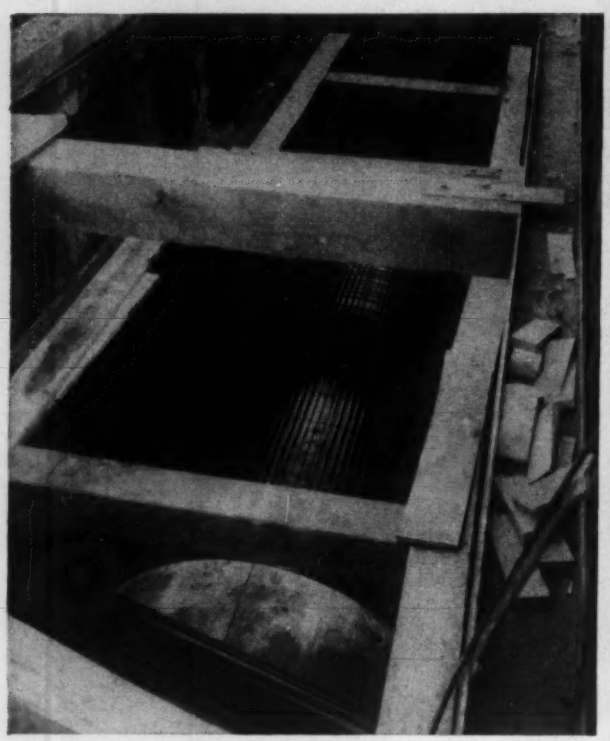
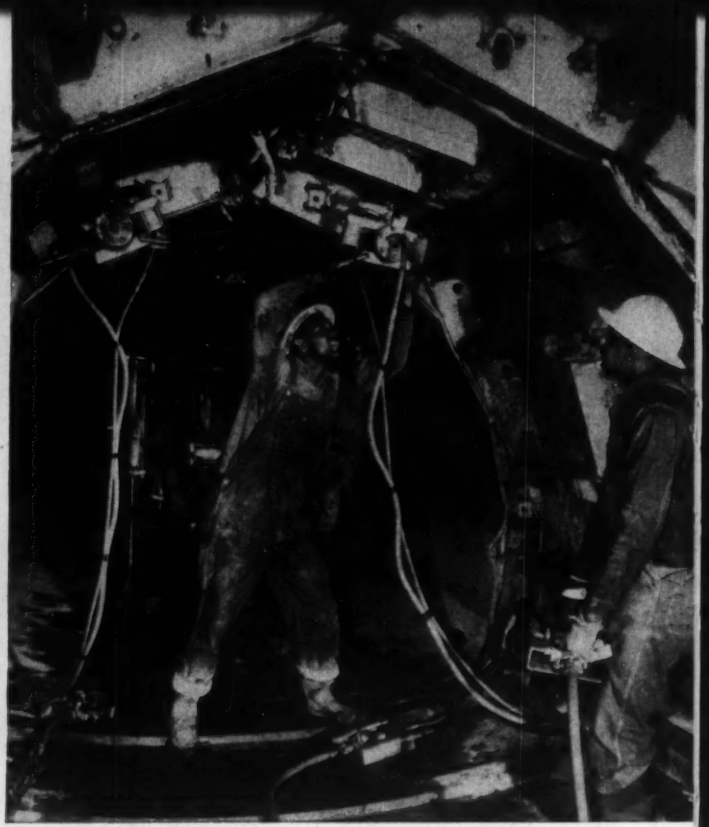


LINING is placed on collapsible forms so its T-shaped ribbing will embed in concrete lining.



FORMS ARE VIBRATED with air-operated, clamp-on vibrators to assure thorough embedment of plastic material.

Cast-in-place Sewer Has Plastic Lining

A mile and a quarter of 8¼-ft dia semi-elliptical concrete sewer is being constructed in Los Angeles with plastic lining protecting all but the invert.

This section of the La Cienega-San Fernando Valley relief sewer marks the most extensive use to date of plastic lining applied to cast-in-place concrete; this type lining has been used more generally on precast concrete pipe (ENR April 3, 1952, p. 74 reported on the plastic lining of 40,000 lineal feet of concrete sewer in nearby Orange County).

Included in the $2 million contract held jointly by Peter Kiewit Sons Co. and Fred J. Early, Jr., Co., Inc., is 6,000 ft of open trench and 900 ft of tunnel. Except for transitions and other special sections the same set of collapsible forms is used for pouring

PRE-BUILT FORMS for transitions and other special sections are fabricated in contractor's yard. Plastic material is placed on forms before they are moved to the job.

COMPLETED TUNNEL has plastic material extending the full arch perimeter.

the 12-in. thick semi-ellipitical arch for the entire 6,900 ft.

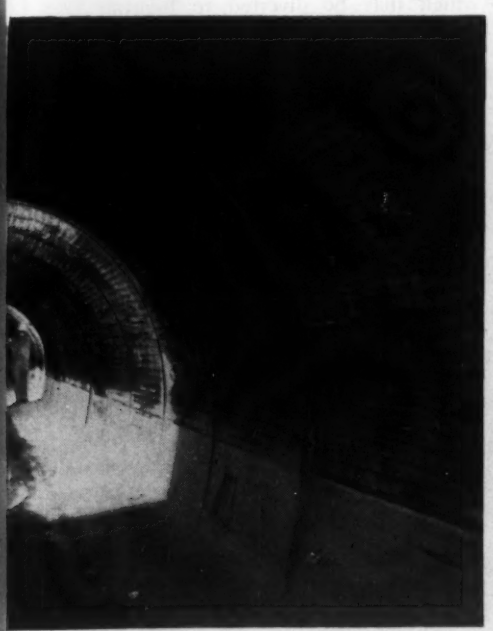
The plastic lining material is placed on the outside of the forms before concreting. Next steel reinforcing for the structure is positioned. During concreting, the forms are thoroughly vibrated to assure embedment in the concrete of the plastic lining's T-shaped ribbing. Clamp-on, air-operated vibrators were used.

The work in question is only part of an extensive relief sewer that will provide more direct connection between the San Fernando Valley portion of Los Angeles and the Hyperion sewage treatment plant. Due to the length of the line and to the fact that it will be flowing only part full most of the time, plastic lining protection of the concrete was considered necessary to prevent damage from sewer gases. The material, known as Amer-Plate T-Lock, is a polyvinylchloride plastic manufactured by Amercoat Corp., South Gate, Calif.

The T-extensions of the ribbing, spaced at 2½-in. intervals are embedded in the concrete making the plastic an integral part of the finished structure.

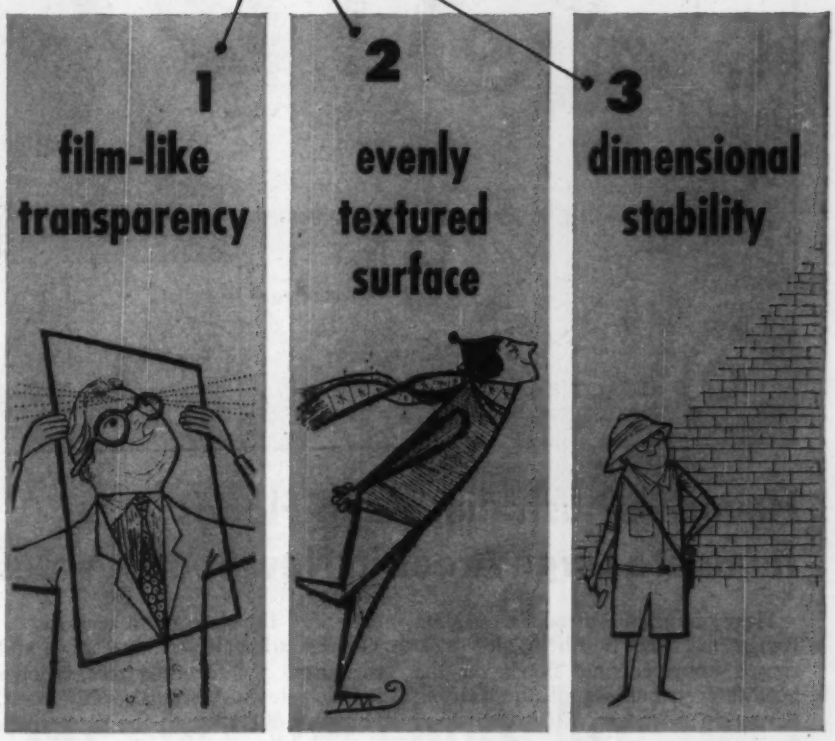
The La Cienega-San Fernando Valley relief sewer system is a project of the City of Los Angeles, Lloyd Aldrich, city engineer. C. G. Studley is engineer of sewer design. Arthur Milicov is supervising construction engineer for the L.A. Bureau of Contract Administration.

Another contract on the work held by Arundel Corp. and L. E. Dixon is for 15,300 ft of 7-ft dia tunnel bid at slightly more than $3 million. This tunnel will also be plastic-lined.



Watermark on plastic makes it appear to reach only part way down.

which tracing medium has all three?



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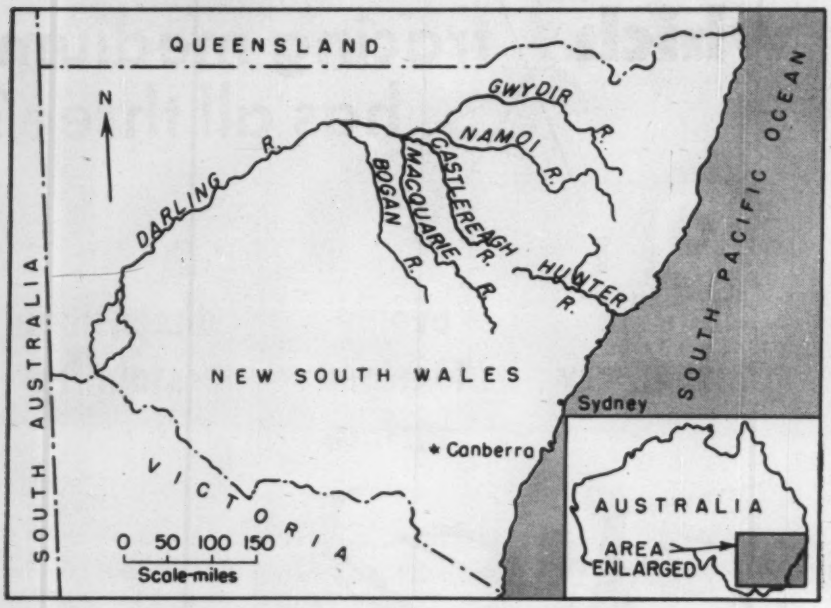


Havoc in Australia: Huge Floods Inundate Large Areas in New South Wales

Heavy rains in Australia's Dividing Range in New South Wales have caused unprecedented floods on the headwater tributaries of the Darling River. In a land accustomed to flash floods, the rivers Macquarie, Namoi, Gwydir, Castlereagh, Bogan, Darling (and the Hunter on the other side of the range) rose to levels exceeding any previously recorded. Records go well back into the nineteenth century.

The Darling River flows south and west from the Dividing Range down to Adelaide on Australia's south coast. For most of its length the river winds through plains and deserts, and in some places the flood increased its width to 50 miles. Several towns and many villages along with many miles of first-class highways were completely destroyed. Observers in the area have assessed losses conservatively at $80 to $120 million.

Several dams burst from the weight of flood waters. Oak Hampton Dam had held all previous floods but succumbed to this one. On the other hand Flenbawn Dam, on which construction is still incomplete, held over its peak capacity safely. Bridges were heavily affected as were thousands of homes and many large structures, but due to broken communications lines the total extent of the damage is not fully compiled.

The catastrophe has underscored some of the heavy shortages in Down Under. Steel shortages will hamper the immediate reconstruction of many bridges, and an emphasis on reinforced concrete will in turn point up the lack of sufficient domestic cement supplies. Modernization will be called for in the design and reconstruction of various facilities, but a lack of funds will greatly curtail the necessary emergency construction work.

Already discussed have been plans to move whole towns to new sites out of the way of future floods. Some portions of towns have been covered in 15 ft of sediment and are totally unredeemable. Current plans for new housing call for an expenditure of $50 million in five years.

Rebuilding roads will present a great problem since not only is machinery for this type of work in short supply, but manpower and materials which may be diverted to highway construction are very scarce.

Bridge Is Final Link

Completion of a 2,600-ft bridge over the Rio Chama has officially opened up Venezuela's 622-mi section of Pan American Highway. The steel span, one of 112 along the route, cost $2 million.

Venezuela's $141-million scenic highway starts at the port city of La Guaira. There, the $66-million "Autopista" runs through the mountains to Caracas. From Caracas the highway goes westward through Maracay, Valencia, the plains capital of Barquisimeto, and Valera. After circling to take in the Andean city of San Cristobal, the road ends at the Colombian border town of Urena.

Venezuela now plans to build a road south from the Orinoco River port of Ciudad Bolivar to the Brazilian border town of Santa Elena. Brazil will then extend its highway system across the Amazon basin to join the projected Venezuelan road. Then it will be possible to drive completely around South America.

Husky construction, simple maintenance, trouble-free transmission with torque converter and clutches that never need adjustment, simple comfortable operation and full visibility are only a few of the . . . . . .

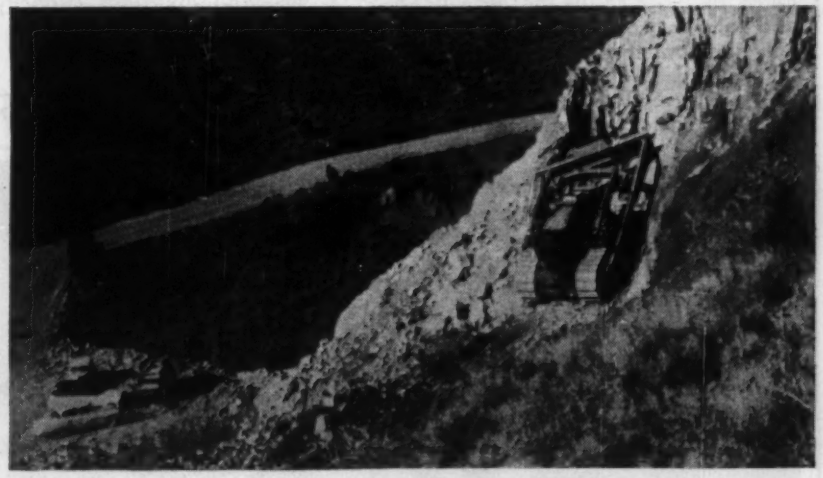
Exclusive Features of the Eimco Tractor that Put Dollars in Your Pocket

The Eimco Tractor stays on the job working more full shifts with less down time and lower maintenance costs. It's easier to work on and requires a minimum of attention in routine service. The Eimco is easier to operate and more maneuverable on the job.

These are only a few of the numerous advantages you get with the Eimco 105 Tractor. The high quality of materials and workmanship assure you of a product that is made right to work hard long hours day after day and month after month at a maintenance cost so low that you'll be pleasantly surprised.

A dollar saved in maintenance time, in down time, in getting the machine where you want it when you want it there **is money for you.** Simple operation means less operator fatigue and more production.

That's why Eimco says — "The 105 Tractor puts dollars in your pocket."

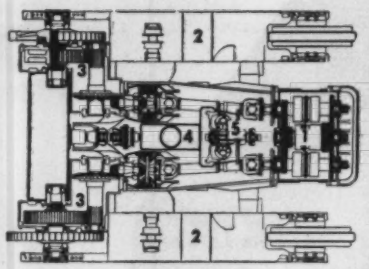


"Easier to Operate than My New Car," says Operator John Dolan.

On steep slopes, or on level ground, the Eimco Tractor can be held or started smoothly just by light foot pressure on the throttle. There is no master clutch to engage —the fluid torque converter picks up the load smoothly at the touch of the operator.

THE EIMCO CORPORATION
Salt Lake City, Utah—U.S.A.

Dependable Husky Unit Construction



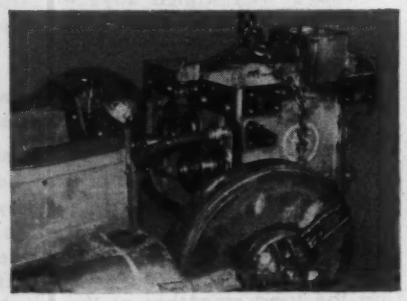
Eimco's self-contained unit construction allows maintenance or removal of each separate assembly without disturbing other assemblies of the tractor. (1) Transmission, (2) Track Assemblies, (3) Final Drive Assemblies, (4) Engine, (5) Torque Converter.

Transmission is a complete self-contained unit which can be removed without disturbing any other of the Tractor assemblies. This transmission contains all of the gearing and clutches for speed changes and reversals. There are no parts in the transmission that require adjustment or routine maintenance.

Eimcos put in your pocket

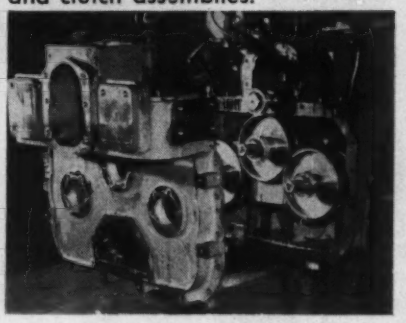
The complete gear train, bearings and clutches run immersed in oil. The gears are in constant mesh and the clutches are of all-metal parts and never need adjustment.

After thousands of hours of heavy service, clutch plates and gearing inspected in Eimco transmissions show little, if any, wear. Under normal conditions Eimco transmissions should run for years before needing overhaul.

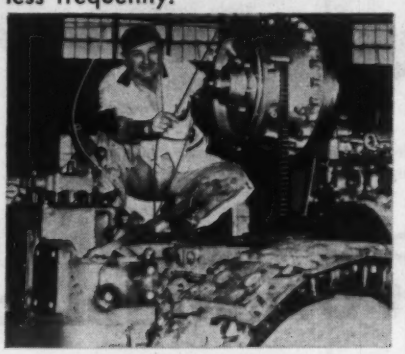


When transmission repair is necessary the complete transmission assembly can be removed without disturbing any of the other major tractor assemblies.

If desired, the transmission housing may be left in place and the front cover easily removed, exposing all of the transmission gearing and clutch assemblies.



The Allison **torque converter** between the Diesel engine and the transmission reduces the shock on the transmission and engine to one-fourth the shock of conventional drives. Transmissions last at least five times as long and engines require overhaul at least one-third less frequently.



Removal of the torque converter or the complete engine and converter is also easy. It is not necessary to remove any of the other major assemblies.

There is no master clutch on an Eimco Tractor. The torque converter takes the place of the master clutch and allows smooth control with only the foot throttle.

The Eimco Tractor is the only crawler tractor without a master clutch. The major expense of adjusting and replacing master clutches is completely eliminated.

Eimcos put in your pocket

Final drive assemblies are husky and simple. The Eimco final drive has been built strong enough to completely eliminate this usual source of trouble on other tractors.

There are no clutches, brakes, springs, hollow shafts or other gadgets in the Eimco final drive assembly. All of the bearings are roller anti-friction type mounted in separate steel cages.

Tremendously longer life has been designed into all of the bearings used in the Eimco Tractor. Bearings should not ever wear out. Bearing life is designed for about five times the average life of competitive tractors.

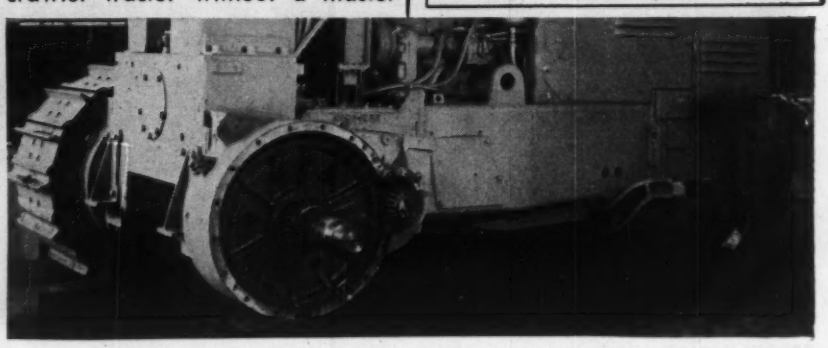
Final drive cases are cast alloy steel and shafts and gears are built to the same design standards that have been used in heavy duty mining equipment that often operates ten to twenty years without repair.

Each final drive assembly is a separate unit which can be removed independently. Or, removal of the final drive cover allows replacement of the gear assemblies through the side of the case.

The Eimco Tractor is designed to operate without failure of the **track roller and front idler** assemblies. This is a one-piece alloy steel casting (1) specially liquid salt flame hardened, and the extra large diameter track roller shafts (2) are also of heat treated alloy steel.

Tapered roller bearings (3) fitted in individual steel cartridges (4) have exceptionally high capacity for long life.

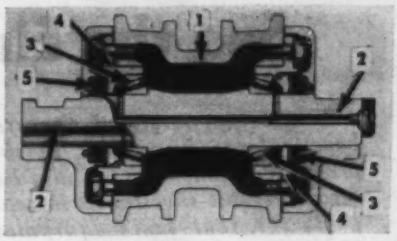
THE EIMCO CORPORATION
Salt Lake City, Utah—U.S.A.



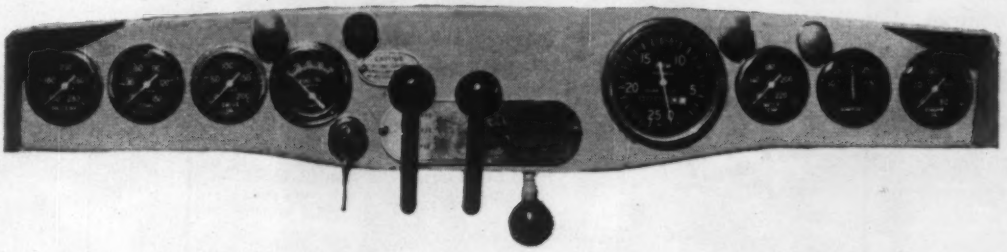
Failure of a bearing cannot damage the track roller. Also, the roller bearings cannot work loose in the roller assembly damaging the seal surfaces.

The seals (5) are accurately lapped and will not allow lubricant to leak from the large lubricant reservoir. The seals cannot be damaged by pressure-operated lubricating equipment.

Your Eimco Tractor will operate without repair many times as long as any other tractor in its work class. When repairs finally are necessary, the faster you can get them done **the more dollars it means in your pocket.**



Simple, Easy Controls



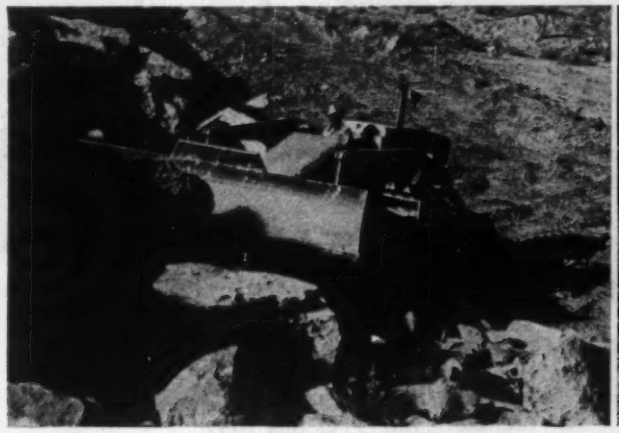
Greatest production is obtained from a tractor when operator physical effort is kept to a minimum. Operating a conventional tractor is hard work—requiring the use of both hands and both feet at the same time to turn, reverse and shift gears.

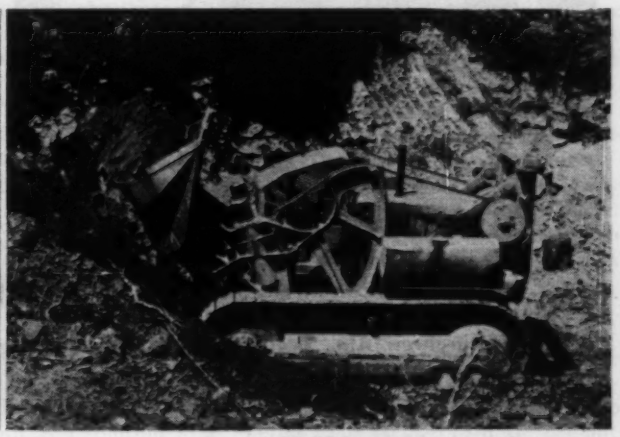
The Eimco Tractor is so simple to operate that an untrained man can do a skillful job after a few minutes instruction. All it takes to run the Eimco is one hand on effortless control levers.

There are no clutch pedals, no steering clutch levers, no master clutch control nor manual gear-shift lever.

The two small levers control all of the track motions from spin turns to forward or reverse without stopping to shift. A third small handle changes speeds in motion without stopping the tractor.

The foam rubber seat up front in the tractor puts the operator where he can see his work without strain or effort.





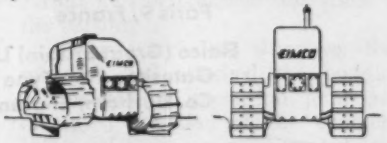
Full power to both tracks in a spin turn applies powerful side push to the bulldozer for operations such as scaling rock along a cliff or uprooting trees or boulders. There is no "dead track" in an Eimco power turn.

Operator has full visibility for operating tractor with loader, dozer or pusher attachments.

EIMCO CONVENTIONAL

In restricted working areas the ability of the tractor to turn in its own length saves time and increases production. Bulldozing in ditches or clearing highway slides, the job is finished faster because the Eimco Tractor does not have to back out to turn around.

Operating in ruts or gulleys it is easy to turn the Eimco Tractor with spin turn power to both tracks.



Maneuverability as shown here provides excellent method for getting out of high-center difficulties.

THE EIMCO CORPORATION
Salt Lake City, Utah—U.S.A.

See the Eimco Tractor before You Buy

Tractor owners and operators have a large investment in their present equipment. They also have a considerable investment in repair parts for that same equipment. However, Eimco believes that no owner will continue throwing away his hard earned dollars on high maintenance equipment if he knows that there is a better product in the tractor field, for the same or less money, that will produce more work with lower maintenance cost and greater operator comfort. Also, the Eimco Tractor carries a one-year Warranty and it is unnecessary to tie up operating money in spare parts and repair shops.

Before you buy your next tractor see the Eimco Tractor and operate it yourself. Give Eimco the chance to demonstrate on your own job. Use the Tractor without obligation and satisfy yourself that this is the better machine you want.

Call the nearest Eimco office for a demonstration.

Write for 16 page descriptive bulletin on the Eimco Tractor.

BRANCH SALES AND SERVICE OFFICES

New York, N. Y., 51-52 South Street
Birmingham, Ala., 3140 Fayette Ave.
El Paso, Texas, Mills Building
Chicago—301 So. Hicks Rd., Palatine, Ill.
Duluth, Minn., 216 E. Superior St.
Kellogg, Idaho, 307 Division St.
San Francisco—637 Cedar St., Berkeley, Cal.
London W. 1, England, 190 Piccadilly
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Pasadena, Calif., 434 No. Lake Ave.
Baltimore, Md., P. O. Box 1052
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Societe Eimco
29 Rue De Mogador
Paris 9, France

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Gateshead-on-Tyne 11
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Eimco Italia, S. P. A.
Via Senato 11
Milan, Italy

Eimco (South Africa) Pty. Ltd.
136 Kindon Road, Robertsham
Johannesburg, South Africa

B-100

THE EIMCO CORPORATION

Salt Lake City, Utah—U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City

LIGHT PICKUPS with 78 and 90-in. box are among 75 new models on 15 wheelbases.

Chevrolet Shortens Truck Wheelbases

The 1955 Chevrolet trucks, which will be on display next week, will feature modern design based on a survey conducted by the company among owners and operators.

As an answer to a voiced desire for more compact design, most wheelbases on the new models have been reduced—some as much as 8 in. Restricted parking and loading facilities, in many cases, make excessive vehicular lengths objectionable, the survey showed.

Also featured is a reduction in maximum cab heights—up to 7 in.—for greater convenience in entering and leaving. Further, the lower hood and engine mounting is reported to facilitate service.

Greater stability for the new line is said to be achieved by wider front treads, straight frame side-members and improved suspensions. All front springs are longer and, in some cases, wider to provide a softer ride. Higher capacity springs for greater loads are optional. The increases in spring length range from 4 to 12 in. in the various series and as a safety measure, full double-wrapped eyes are at the fixed end of all front truck springs.

New front axle I-beams on what Chevrolet calls its Task Force series are lengthened for the additional front tread width. A new 34-in. frame width allows wider spacing of the front springs, and on forward control models, a new "deep drop" I-beam reduces ground to frame height. This latter feature lowers the center of gravity and is said to improve steering and handling characteristics.

In addition to a V-8 engine, which boasts the shortest stroke in the industry, buyers will have their choice of new 6-cyl, 235 and 261-cu in., valve-in-head engines. A 12-v electrical system is now standard on all chassis. Power steering and power brakes are available on all models. CHEVROLET MOTOR DIV., GENERAL MOTORS CORP., A-227 GENERAL MOTORS BLDG., DETROIT 2, MICH.

A-C Motor Grader Gets Power-Shiftable Moldboard

A hydraulic shiftable moldboard has been introduced as an additional accessory for Allis-Chalmers Model D motor graders.

The powershift moldboard, similar in design to the hydraulic moldboard of the AD-40 Motor Grader, permits a side shift of 16 in. right or left and the blade can be shifted from the operator's seat. ALLIS-CHALMERS MFG. CO., TRACTOR DIV., MILWAUKEE 1, WIS.

Caterpillar Ups Horsepower And Engine Speed on the D7

Increased horsepower and engine speed highlight the improvements that have been introduced in the new Caterpillar D7.

The engine in the new tractor produces 128 hp at 1,200 rpm compared to the 108 hp at 1,000 rpm in the previous model. The maximum drawbar pull for the D7 is now 28,700 lb, approximately 3,500 lb more than its predecessor.

Another innovation designed to improve the tractor's operation is an engine balancer which reportedly reduces vibration and permits the four-cylinder engine to operate at 1,200 rpm with the same degree of smoothness as a six-cylinder design.

Other features include: redesigned engine block; new injection system; a new starting engine; new radiator; larger fuel tank; new fuel filter system; redesigned oil filter base adapter; and improved air cleaner. CATERPILLAR TRACTOR CO., PEORIA, ILL.

Expansion Joint Sealer Has Long Life

A recently developed expansion joint sealant—born as a solution to a problem situation on a construction job—promises important advantages over conventional asphalt and mastic types.

A major company found itself with the necessity of filling expansion joints that were 2 in. wide and 10 in. deep on a structure that was required to hold considerable quantities of warm water at times and be cold and dry at others. It is reported that the best of the mastic and asphalt materials could not maintain a watertight seal for more than a few months and therefore a new sealant was sought.

Experiments with the manufacturer's standard product, called Thiokol, are said to have shown it to be better than average in life expectancy but still not completely satisfactory. Large cracks appeared between the concrete and the sealant and upon closer inspection it was disclosed that a thin film of concrete was stuck to the sealant.

It was concluded, therefore, that moisture had attacked the bonding surface of the expansion joint and decreased cohesion of the concrete. When the concrete contracted, the resistance to elongation in the sealant set up a force sufficient to break the concrete along the bonding surface.

From the investigation it was determined that the sealant must be soft

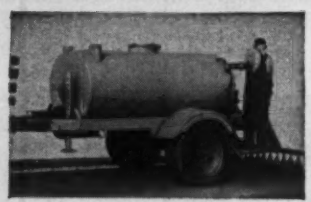
(*Continued on page 50*)

GRACE

3 sweeper models, axle, engine or tractor powered.

Sheepsfoot Rollers 250 to 600 psi.

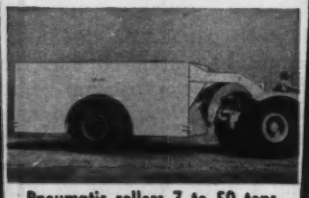
GRACE Asphalt and Compaction Equipment



Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.

Rapid Fire circulating heaters heat and unload large tanks of asphalt.

Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.



Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.

6015 S. LAMAR, DALLAS, TEXAS

with a good ultimate elongation factor. Further, it was necessary to develop a method of maintaining or increasing the cohesive strength of the concrete surface—even when it was to be subjected to high moisture content.

To overcome the concrete failure, PR-1090 primer was developed. It was intended that the primer penetrate the concrete surfaces and bond the concrete particles together with a synthetic rubber adhesive. It is said that the primer also served another purpose in that it set up a moisture barrier to prevent moisture from migrating to the bonding surface of the sealant.

The sealant, PR-395, is a thin viscosity compound that can be poured into cracks $\frac{1}{8}$ in. or more in width. When used to fill vertical joints on a wall, it is necessary to set up a form to retain the compound in the joint until it cures.

Samples of the PR-395 sealant and PR-1090 primer were submitted for use on the problem project and approved after extensive tests. A total of 3,880 gal of PR-395 was subsequently used.

Other jobs, however, indicated that application techniques had to be developed to conform with job requirements. On a retaining wall, for instance, some cracks were opened to a width that would have allowed the PR-395 to flow entirely through the wall. A packing was therefore forced into the wall to a depth of $\frac{1}{2}$ in. The wet areas were dried before applying the primer and the cracks were then sealed using a 2-in. wide strip of adhesive tape to retain the compound while curing.

On cracks of $\frac{3}{4}$ to 1-in. width, considerable difficulty was experienced with the tape, and wood forming was often impractical. It was then that PR-395-HT was developed.

Formulation of this compound is basically that of the PR-395 except that it has non-sagging features incorporated. On an actual application it was found that the new compound did not sag when extruded into a crack $\frac{3}{8}$ in. wide by $\frac{1}{2}$ in. deep by 6 ft. long. Maximum workable limits and dimensions have not been determined.

The manufacturer points out that the new compounds should not be considered as a cure for all sealing and calking ills. For one thing, it's too expensive—3 to 4 times as expensive as standard calking compounds. Where only a filler is required, asphalt should be used. Further, if cost is considered without reference to permanency of the installation, the new compounds cannot be considered competitive. Price of the material in a finished job is estimated at 7¢ per lin ft as compared with 5¢ per ft when $4.00 per gal. mastic is used.

The discrepancy in lin ft price is kept small, it is reported, because it is not necessary to widen the crack as much as when using standard products. For example, when using mastic compounds the cracks would be cut out approximately $\frac{3}{8}$ in. by $\frac{3}{8}$ in. in comparison to $\frac{1}{4}$ in. by $\frac{3}{8}$ in. with PR-395 and PR-395-HT.

On one job, approximately 300 ft of cracks in a concrete wall were repaired with PR-395-HT, and the contractor reported that a good profit can be made at a rate of $1.25 per ft with allowances for contingencies.

According to the manufacturer, the new compounds outlast mastics and asphalt compounds by at least 4 to 1 with shrinkage over that period negligible. PRODUCTS RESEARCH CO., 3126 LOS FELIZ BLVD., LOS ANGELES 39, CALIF.

Steel Core Gives Wire Rope 15% Greater Strength

Roebling's new line of wire ropes, with steel cores, are reported to have 15% greater strength than the strongest grade marketed heretofore.

The new rope is stated to have higher resistance to wear from bending and abrasion, and consequently, has higher strength, also longer life.

The higher strength rope will be obtainable in rope sizes ranging from $\frac{1}{4}$ to $3\frac{1}{2}$ in., and will include sizes for use on shovels, draglines, scrapers and other pieces of earth-moving equipment. JOHN A. ROEBLING'S SONS CORP., TRENTON 2, N. J.

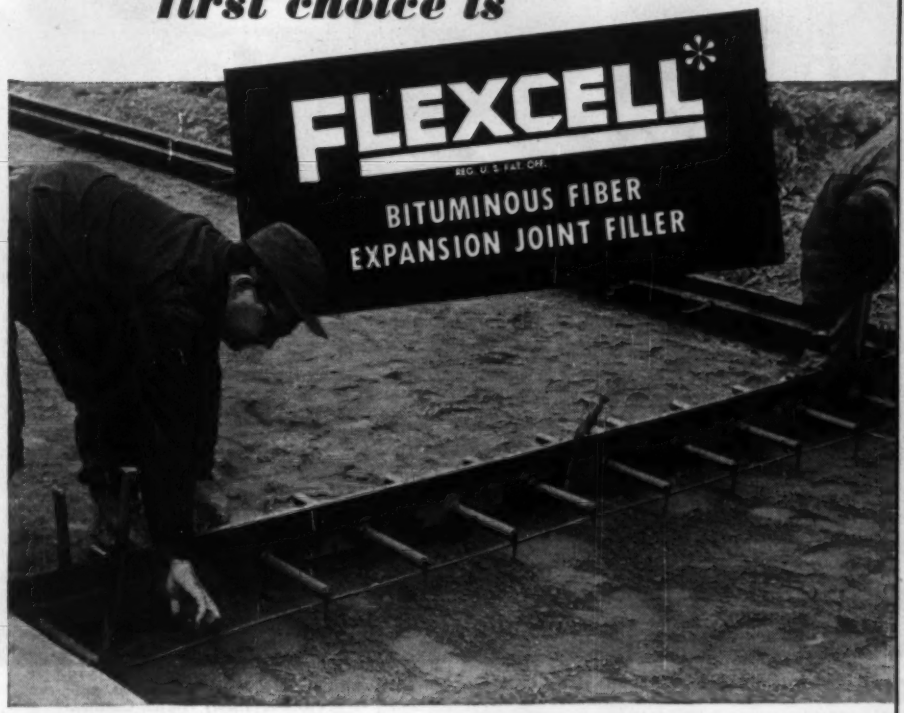
$185 Keeps Crane Booms From Contacting Power Lines

A new model Electro-Alarm is now available for $185. The device sounds an alarm when the operator of a crane places his boom within 8 in. to 400 ft of a power line—the exact distance depends on the voltage in the line and the setting of a sensitivity control on the unit.

According to the manufacturer, the device functions in proximity of ac or dc voltages, active telephone lines, street car lines and some shallow buried underground cables. Special circuits are built into the unit so that it does not depend on actual current being drawn through the lines—presence of voltage is all that is necessary to cause the alarm to be sounded at a safe distance.

The standard unit comes equipped

Across America . . . wherever concrete meets concrete . . . first choice is



On bridges and airport runways, on streets, highways, throughways, and expressways . . . *wherever concrete meets concrete* . . . Flexcell Bituminous Fiber Expansion Joint Filler is *doing a job!* For joints that are free from bulges or crevices, that stay closed under severest traffic and climatic conditions, Flexcell Filler has won coast-to-coast acclaim.

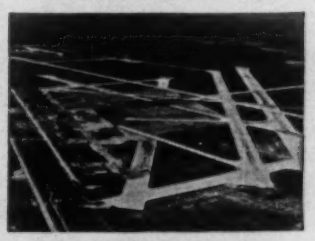
In years of trouble-free performance on thousands of projects, Flexcell Joint Filler has proven a cost-saver in both initial expense and freedom from maintenance. Its secret lies in the resiliency of the tough, durable cane fiber board base. Millions of tiny air cells absorb pressure without extruding as concrete expands. When concrete contracts, Flexcell Joint Filler springs back to normal, keeping joint neatly and smoothly closed.

Simple to handle, easy to work with, Flexcell Joint Filler provides neat, finished joints without trimming. It is impregnated with asphalt to resist moisture, and protected by the patented Ferox® Process against dry rot and termite attack. Rough-textured surface means a firmer bond with concrete; it is ideal for work involving special cutting, tapering and fabricating. And over 70% "recovery" has been proved in laboratory tests!

Flexcell Joint Filler has long been specified by leading engineers, contractors, and architects . . . as well as the United States Army and Navy, and other Federal, State, and Municipal agencies. *Before* you start your next job, investigate the reasons for this nationwide preference.

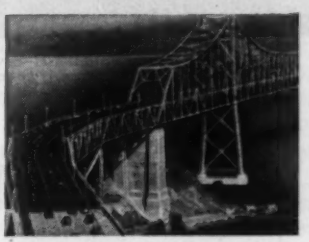
Mail the coupon below for full data on the benefits and economies of using Flexcell Joint Filler for pavements, runways, sidewalks, curbs, gutters, driveways, concrete floors. No cost or obligation.

• Rickenbacker Causeway

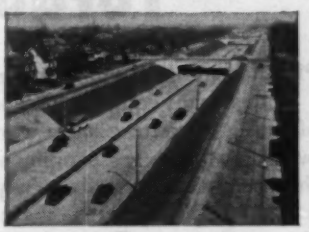


• Cleveland Municipal Airport

• New York State Thruway



• San Francisco-Oakland Bay Bridge



• Detroit Express Highway

These Heavy-Traffic Arteries Stay Maintenance-Free with

FLEXCELL
JOINT FILLER

Another Famous **CELOTEX** *Product*

FLEXCELL
REG. U.S. PAT. OFF.

BITUMINOUS FIBER EXPANSION JOINT FILLER

The Celotex Corporation, 120 S. LaSalle Street, Chicago 3, Illinois

*Flexcell is a Trademark identifying Bituminous Fiber Expansion Joint Filler marketed by The Celotex Corp.

MAIL COUPON TODAY

The Celotex Corporation, Dept. ENR-35
120 S. LaSalle St., Chicago 3, Illinois

Without obligation, please send me complete data and prices on Flexcell Bituminous Fiber Expansion Joint Filler.

Name_____

Address_____

City_____ Zone_____ State_____

This Caterpillar D318 Diesel—powering a crane—works through a Twin Disc Model CF Torque Converter which provides faster work cycles, protects both engine and driven equipment. Behind the Model CF are a Twin Disc Reverse Gear and two Twin Disc Heavy-Duty Friction Clutches.

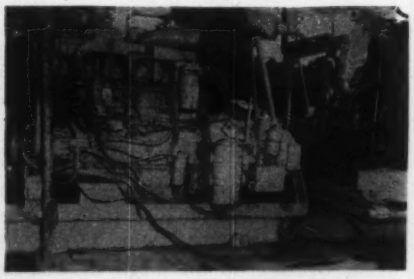
Why the trend is to Torque Converters

Planning to order a new power unit?

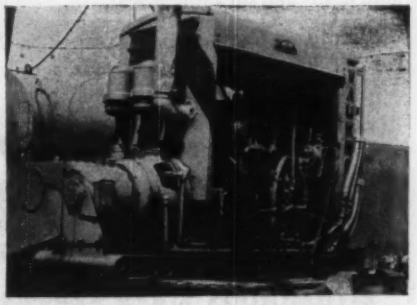
Today, many equipment owners are planning on getting *more* work output . . . and *longer* equipment life: they're ordering their new power units *complete* with Twin Disc Torque Converter Drive. And they're having Torque Converter Drive installed on equipment already working in the field.

Why? Briefly, here are six *proven* reasons why: 1 Through the Twin Disc Three-Stage design, their engines' output torque is *multiplied up to six times* . . . the highest torque multiplication available. Consequently, they're *eliminating* harmful, costly engine lugging and stalling. 2 With Torque Converter Drive, their engines are working up in the maximum efficiency range *all* the time, delivering *constant* high-horsepower output. 3 Power is *automatically* matched to the load demand, with gear-shifting minimized or eliminated. 4 Heavy load pick-up is *smooth, even, without* clutch-slippage. 5 Overloads, shock loads, vibrations and torsional variations are cushioned *out,* through *fluid* connection . . . which means *longer* life, *less* maintenance on engines, transmissions, clutches, drive line components *and* driven equipment. 6 Torque Converter Drive provides an *infinite* variety of ratios to work with, permitting *smooth, accurate control* of the load and delicate "inching" or "holding" under power.

So if you're thinking about a new power unit . . . or thinking about present equipment needing more power, more performance . . . *be sure to get the facts on Torque Converter Drive.* Ask your engine dealer. Or write *today* to Twin Disc Clutch Company, Hydraulic Division, Rockford, Ill., for Bulletin 135-D.



Higher work output is provided by Twin Disc Model CF Torque Converter on Cummins NHRIS-600 Diesel (l.), and by Model F Torque Converter on Cummins HRIS-600 Diesel (r.).



Twin Disc Model F Torque Converter on Waukesha WAK Diesel, driving oilfield hoist, picks up heavy loads smoothly, easily through up-to-6:1 torque multiplication, infinite variety of ratios.

How your engine dealer can equip any power unit up to 650 horsepower with Torque Converter Drive

Any type engine up to 650 hp — gas or diesel—can be easily equipped with a Twin Disc Torque Converter, for nearly any hook-up on any type installation.

Three Series, or sizes of Twin Disc Industrial-Type Torque Converters are available, with 7 capacities in each size through internal blading variations. And 20 different input, output combinations make Twin Disc Torque Converters easily adaptable to any type application.

The Model F Torque Converter has a gear tooth drive input, and bolts directly to the engine flywheel housing, with no clutch. The Model CF also bolts to the flywheel housing, but provides a clutch between flywheel and converter pump wheel. The Model IF is independently-mounted, with either narrow or wide chain housings on the input end. Each model offers 5 different output combinations: narrow-chain housing, wide-chain housing, straight shaft for direct connection to the driven load, flanged shaft for "U" joint connection to propeller shaft, and a heavy-duty direct-connected rear end.

Let your engine dealer show you how easy it is to have your power unit made *complete* . . . with Twin Disc Torque Converter Drive.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin
Hydraulic Division, Rockford, Illinois

with enough cable for a 50-ft boom; additional cable is available at 25¢ per ft. With each additional length of boom cable supplied, a set of two-coupling plugs—at $2.50 a set—must be used. The unit and accessories are weatherproofed. The system is designed so that it can be installed by the purchaser's personnel.

The warning system will operate on any battery source from 6 to 36 v with drain during operation rated at less than 3 amp. When the crane boom enters the danger zone a horn is sounded. If for some reason the unit or components are inoperative a red light on the front panel flashes so that the defect can be repaired. ELECTRO-ALARM SAFETY DEVICES, 745 PLEASANT ST., FRESNO 5, CALIF.

Compression Brake System Saves Wear On Tires, Brakes

A recently developed brake system converts a truck engine—either gasoline or diesel—into a low pressure air compressor that retards the vehicle.

The compression is achieved by the installation of a special port between the carburetor and the intake manifold in gasoline engines and the placement of a butterfly valve between the manifold and the muffler to restrict the escape of the exhaust. On four-cycle engines, closing the butterfly valve creates a compression stroke for each revolution of the crankshaft instead of the usual one for every two revolutions. In addition, the port be-

(*Continued on page 54*)

New Grader Has 195 hp, Torque Converter

The first new product under the Huber-Warco name is the 5D-190, said to be the world's first motor grader to offer 195 hp.

Power is supplied by a General Motors 6-71 diesel engine, through a torque converter and fullpower shift transmission. This power train eliminates the need for a clutch.

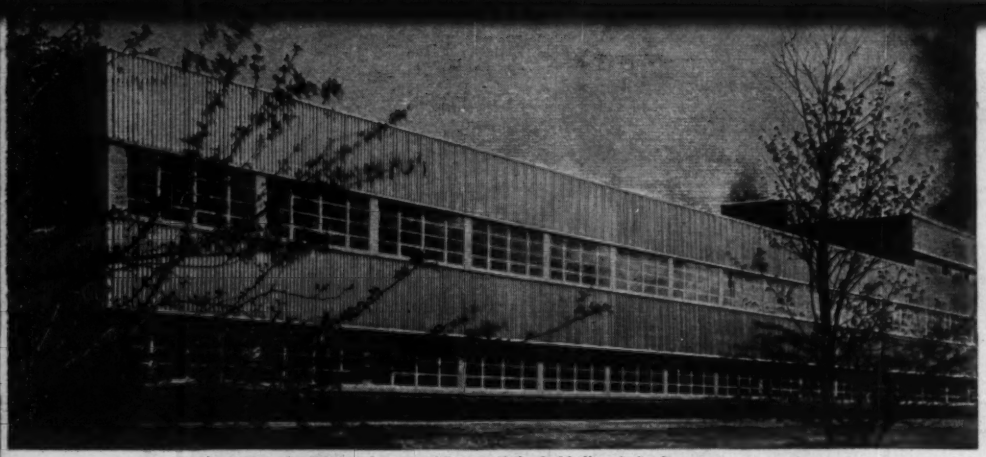
According to the manufacturer, the tail shaft governor, automatically adjusts the engine rpm to meet any load conditions, at any ground speed set by the operator. Ground speed of the unit ranges from .85 to 20 mph. A torque converter transmission permits power shifts to be accomplished while the grader is under full load, eliminating any reduction of speed or loss of power.

The new machine weighs approximately 32,000 lb, and uses 16.00x24 tires. All wheels are interchangeable to provide longer tire life.

Cab-controlled blade movement on the 5D-190 makes it possible for the operator to shift the blade from 90 deg on one side to 90 deg on the other in less than a minute. This operation is performed hydraulically, with no linkages to adjust manually. A 13-ft power sliding moldboard is standard equipment.

A high-arched front axle gives a front-end clearance of 32 in. to permit the grader to straddle higher windrows, provide greater clearance for rough cuts.

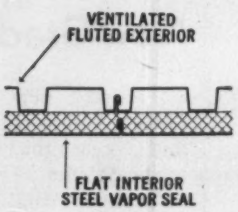
Other features include: mechanical steering with hydraulic booster, single-member, continuous box frame design; high blade clearance; and retractable scarifier permitting 360 deg blade rotation without removing scarifier teeth. HUBER-WARCO CO., MARION, OHIO.



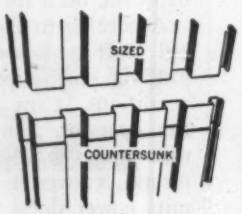
An office building designed by Giffels & Vallet & L. Rossetti, Associated Engineers and Architects, Detroit.

3 Good Technical Reasons For Specifying Robertson Q-Panels

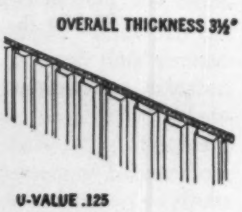
1 **Continuous Sealed Joints** The interlocking side lips on both the inner and outer surfaces of the panels are caulked to provide a continuous sealed joint. Thus, when the panels expand or contract, the joints do not separate but remain in contact with the caulking material. This efficient side joint effectively maintains the insulation qualities of the wall and prevents the infiltration of air, dirt and moisture.



2 **Flush Lap Joint** Special conditions often make end-joints unavoidable. All standard Robertson Q-Panels are die-set and countersunk at the end lap, producing neat, almost invisible joints, with full insulation at that point. This feature eliminates the inefficient butt-joint with its unattractive through-wall flashing and consequent insulation loss.



3 **Efficient Insulation** The U-Value of an M-Type Q-Panel wall is .125 BTU per sq. ft. per hr. per °temp. diff., F. This was established by careful tests made at one of the nation's leading industrial research laboratories. Special attention was given to thermal conductivity at all critical points along the wall and the established U-Value is an average over a stretch of wall involving several side laps. Use the coupon to write for details.



H. H. Robertson Company

2420 Farmers Bank Building • Pittsburgh 22, Pennsylvania

In England: Robertson Thain Ltd., Ellesmere Port, Cheshire • In Canada: Robertson-Irwin Ltd., Hamilton, Ontario

Please send free information on Q-Panels.

NAME TITLE

FIRM

ADDRESS CITY

tween the carburetor and manifold permits only air to be drawn into the cylinders rather than fuel vapors.

The compression brake is controlled by a hand valve mounted along with a gauge showing manifold pressure on the steering post of the vehicle. Braking pressure is released with the foot throttle.

According to the manufacturer, installation of the brake—which can be done in a few hours—makes brake lining last up to four times longer, reduces fuel and oil consumption and adds life to tires. POWER BRAKE EQUIPMENT CO., 1632 SE 11TH AVE., PORTLAND, ORE.

Air Entraining Agent Resists Cold Weather

Permite N-Tair, a new air entraining agent for concrete, is a clear amber low-viscosity liquid, that is said to be a complete and homogeneous solution, guaranteed not to segregate, settle out, become gummy, or lose efficiency when stored at low temperatures.

In use, between ¾ and 1 oz. of the solution is added to the mixing water for each sack of cement to obtain a 3 to 6% volume of entrained air in the mix.

The new product is reportedly accepted as an approved material by ASTM, Bureau of Public Roads, Corps of Engineers, and all other federal and state departments.

It is packaged in 5-gal pails and 30-gal and 53-gal drums. PERMITE CURING COMPOUND DIV., ALUMINUM IND., INC., 2438 BEEKMAN ST., CINCINNATI 25, OHIO.

Small, Lightweight Electric Plant Turns Out 3,500 Watts

According to at least one manufacturer, the trend is toward higher speed models in electric plants for portable and stand-by service. A new unit has an engine speed of 3,600 rpm with smaller size and lighter weight than available before in a 3,500-w plant, according to the manufacturer.

Power is supplied by an air-cooled, 1-cyl gasoline engine close-coupled to the generator. The 110-120 v ac set is offered in 60 cycles, single phase, and there is a choice of starting methods, including remote control for stand-by emergency service.

The model 71-B is a complete operating unit, including gasoline tank; adjustable, fully enclosed mechanical governor, muffler, and rope starter for the manual starting model. In the electric starting model, the engine is

cranked by means of special winding in the generator.

It measures 26 in. in length, and weight for the manual starting model is 240 lb. UNIVERSAL MOTOR CO. 186 HARRISON ST., OSHKOSH, WIS.

Vinyl Paint Gives Heavy Protection With One Coat

A new vinyl mastic protective coating, Amercoat No. 87, reportedly can be applied at a thickness of 10 mils in one double-pass spray coat. According to the company, No. 87 Vinyl Mastic produces this heavy film thickness without sacrificing chemical and moisture resistance.

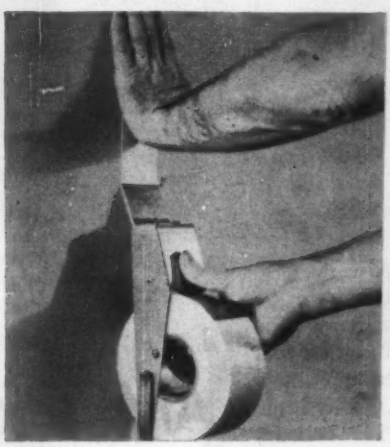
Despite an unusually high solids content, the coating is applied with conventional industrial spray equipment. It is pointed out that the film does not flow away from edges and sharp corners and therefore provides extra protection for areas particularly susceptible to corrosive attack.

These new properties are said to be the result of a greatly increased vinyl resin content made possible by new combinations of solvents. The manufacturer states that the new coating has a non-volatile content in excess of 55% which is nearly twice that of most vinyl maintenance coatings. AMERCOAT CORP., 4809 FIRESTONE BLVD., SOUTH GATE, CALIF.

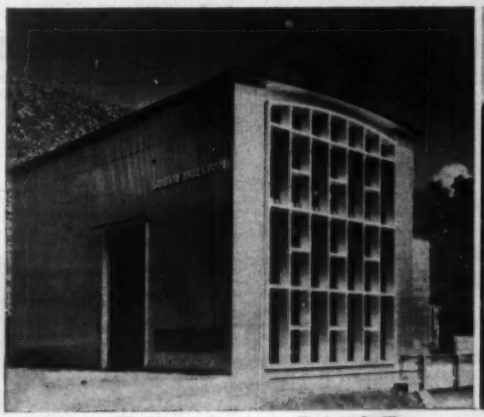
Wallboard Tape Dispenser Reduces Installation Time

Speedy Sparker dispenses any standard wall-board tape of "spark" up to 2⅛ in. wide and up to 250 ft long. With the tool the wall-board installer unrolls, cuts off and places tape over the seam in one motion.

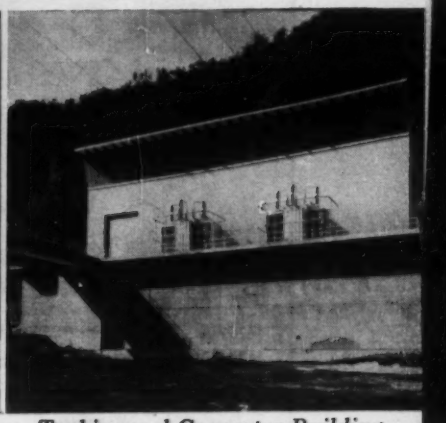
The dispenser is light in weight, hangs from the worker's belt and can be refilled quickly. Loaded with 250-ft roll of slit-perforated tape, the Speedy Sparker retails at $6.95. GOLDBLATT TOOL CO., DEPT. Y22, 1960 WALNUT ST., KANSAS CITY, MO.



Johnsonville Steam Plant, Johnsonville, Tenn.



South Holston Project, Bristol, Tenn.



Turbine and Generator Building, Watauga Dam, Elizabethton, Tenn.

Robertson Q-Panels helped bring both beauty and utility to TVA installations

In TVA installations, as in power stations everywhere, Robertson Q-Panel walls are popular because they are practical as well as beautiful. Beyond good looks, here are some very practical reasons for specifying Q-Panels: 1. Q-Panels are permanent, dry and noncombustible, yet may be demounted and re-erected elsewhere to keep pace with expansion programs. 2. Q-Panels are light in weight, thus reducing the cost of framing and foundations. 3. Q-Panels have high insulation value . . . superior to a 12" masonry wall. 4. Q-Panels are quickly installed because they are hung, not piled up. An acre of wall has been hung in 3 days. For more good reasons for using Q-Panel construction, use the coupon below to write for literature.

Robertson

Q-Panels

a product of **H. H. Robertson Company**

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HOW WARREN BROTHERS PA

(Another cost cutting story)

By Mr. Friendly

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MORAL:

In putting down a pavement
If you flatten a man
You'll wash out your profits,
So, let's help you plan . . .
To keep accidents down and workers up!

For 20 pleasant years the Warren Brothers Roads Company of Cambridge, Massachusetts has worked mind to mind with American Mutual Safety Engineers to prevent trouble before it occurs!

Thanks to thorough inspection and hazard analysis . . . and immediate investigations when accidents have occurred, this nationally known construction firm has been able to maintain a good accident prevention record and to lower operating costs.

If you're interested in a service that can help you keep accidents and injuries at an absolute minimum . . . and the savings and dividends that go with it, write today for your free copy of "Surface Construction Without Accidents," American Mutual Liability Insurance Company, Dept. O-135, 142 Berkeley Street, Boston 16, Mass.

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ys such as this one
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thorough safety plan-
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Company to assure
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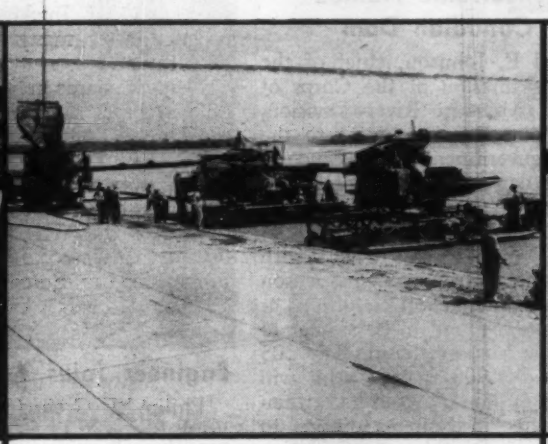
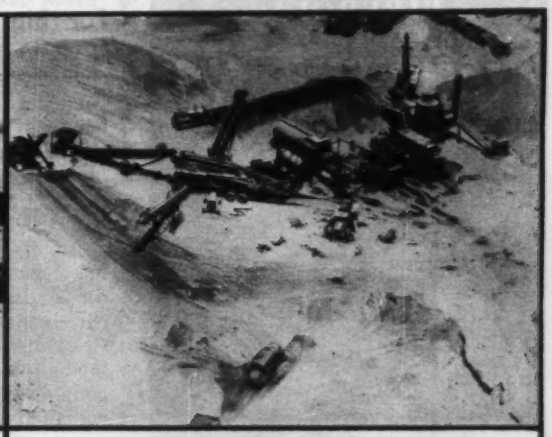
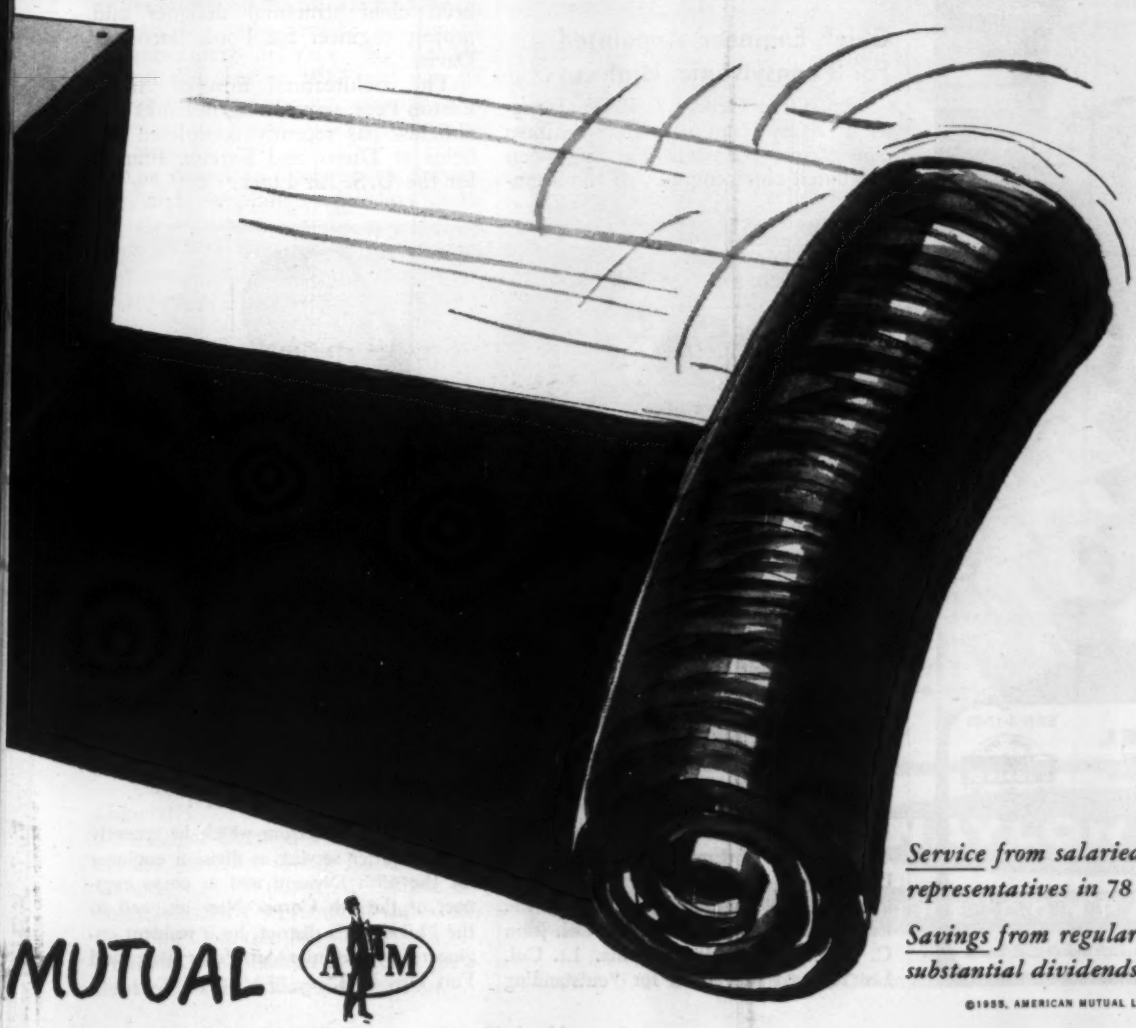


Whether it's this concrete paving job for the airstrip at Georgetown, Delaware or asphalt hot top paving for Washington, D. C. airport, this contractor knows that safety controls are needed to keep manpower and equipment at top performance.



Portable equipment such as this half-million-dollar, Warren Brothers crushing and paving plant set up at Rockland, Maine for a large road paving job, provides peak operating performance with uninterrupted flow of material and helps to cut accident and operating costs.



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Service from salaried representatives in 78 offices.

Savings from regular substantial dividends!

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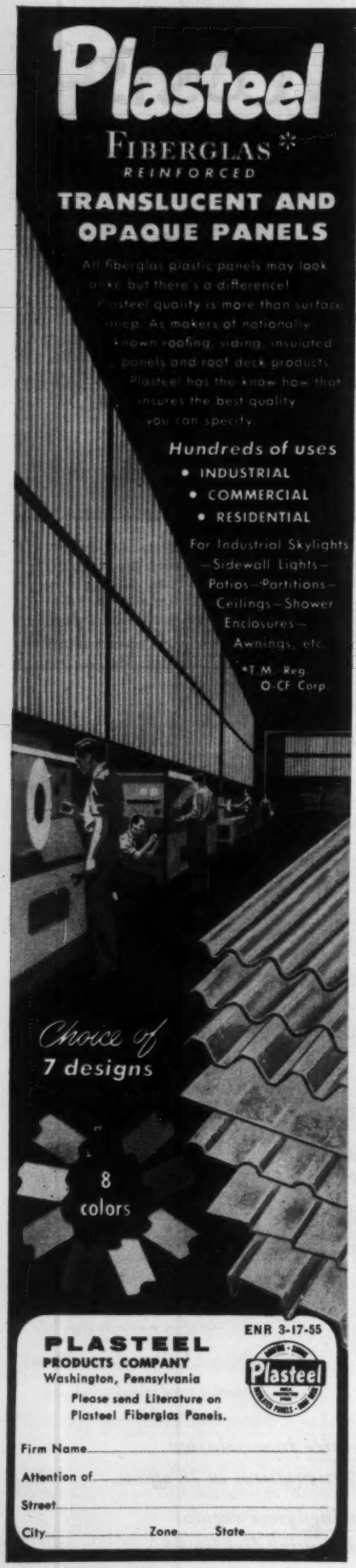
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All fiberglas plastic panels may look alike but there's a difference! Plasteel quality is more than surface deep. As makers of nationally known roofing, siding, insulated panels and roof deck products, Plasteel has the know-how that insures the best quality you can specify.
Hundreds of uses
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MEN AND JOBS

U. S. Consultants Named For Big Canadian Dam

Wendell E. Johnson, chief of the engineering division of the Corps of Engineers' Missouri River Division, has been named a consultant to the Canadian government in construction of a large dam on the Saskatchewan River in Saskatchewan Province, Canada.

Johnson's long experience with major earthen dams was cited as reason for his assignment. Soil conditions at the dam site are said to be similar to those in the Missouri basin. The 205 ft high and 8,500 ft long dam will contain 35 million cu yd in its earthen embankment and, in addition to power, will provide water for irrigating 400,000 acres.

Also named as consultants on the project are Arthur Casagrande and Karl Terzaghi, soil mechanics and foundation specialists of the Harvard University Graduate School.

Chief Engineer Appointed For Pennsylvania Highways

Maj. Gen. George J. Richards, retired Army engineer and business consultant of Easton, Pa., has been appointed chief engineer of the Pennsylvania Highway Department. He succeeds C. H. Buckius, who recently resigned after many years with the department.

Gen. Richards retired from active duty in 1953, after serving as chief of the United States Military Assistance Advisory Group to France. For several years during and after World War II, he was associated with the budget activities of the War Department and became Inspector General, U. S. Forces in the European theater, in 1949.

Engineer Joins Architects

Philip M. Grennan, formerly with Ford, Bacon & Davis, Inc., has joined the office of Alfred Easton Poor, New York architects, as an associate.

An architectural graduate of the University of Illinois and a professional engineer, Grennan was field engineer in Peru for Cerro de Pasco Corp. and for the past 14 years has been chief structural designer and project engineer for Ford, Bacon & Davis.

The architectural firm of Alfred Easton Poor, specializing in banks and airfields, has recently completed airfields at Dreux and Evreux, France, for the U.S. Air Force.

Corps of Engineers—Father, Son and Legion of Merit

General John C. H. Lee, retired veteran of the Corps of Engineers and a former Philadelphia district engineer, was recalled to active duty long enough to present the Legion of Merit to his son, Lt. Col. John C. H. Lee, Jr., in Philadelphia. Lt. Col. Lee received the award for "outstanding service" in Korea, from which he recently returned after serving as division engineer for the 45th Division and as corps engineer of the 9th Corps. Now assigned to the Philadelphia district, he is resident engineer for McGuire Air Force Base and Fort Dix, N. J.

Congress on Surveying Names Higbee President

Lester C. Higbee was elected president of the American Congress on Surveying and Mapping at its 15th annual meeting last week. He succeeds Carroll F. Merriam.

A civil engineering graduate of Rensselaer Polytechnic Institute, Higbee is president of W. & L. E. Gurley, engineering and scientific instrument manufacturers in Troy, N. Y. He joined the firm in 1915 and was its director of engineering, general sales manager and secretary prior to becoming president.

The American Congress on Surveying and Mapping represents both private interests and government agencies. It consists of professional surveyors, educators and makers of surveying and mapping equipment.

Men and Jobs Briefs . . .

• **Careers**—**Clarence J. Olsen** becomes supervisor of the Michigan Highway Department's testing laboratory at the University of Michigan, succeeding **Ward K. Parr,** who becomes acting assistant testing and research engineer for the department . . . **Brig. J. P. Carriere** is appointed chief engineer of the harbors and rivers engineering branch of the Federal Works Department of Canada . . . **W. Gookin** is named chief engineer for the San Carlos irrigation district in Arizona.

• **Associations**—Colorado Society of Engineers elects **R. F. Blanks** president . . . **Archer T. Osler** is named head of General Contractors Assn. of Hawaii . . . **Edgar Drew** is elected president of the Ontario Good Roads Assn., Canada . . . **William A. Bellisle** becomes executive secretary of the North Carolina Concrete Masonry Assn. . . . **William W. Wachter** is elected president of ASCE's Hawaiian section.

RECIPE FOR BETTER AIR LINES

When you combine these advantages built into Naylor lightweight pipe, you can count on top performance in air lines for high or low-pressure service:

LIGHTWEIGHT—without sacrifice of strength, assures easy handling and installation.

SAFETY—through the spiralwelded lockseam which acts as a continuous expansion joint to absorb shock loads, stresses and strains.

GREATER COLLAPSE STRENGTH—through the reinforcing spiral truss which permits lines to be operated under vacuum as well as pressure.

FASTER CONNECTIONS—with the one-piece Naylor Wedge-Lock coupling that can be assembled or disassembled with a hammer.

For the complete story on this distinctive lightweight pipe and coupling combination, write for Bulletins No. 507 and No. 514.

NAYLOR PIPE

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"What do you mean you can't get good prints?"

Don't expect the Blueprinter to produce sharp prints from poor tracings. Be sure! Switch to graphite-saturated

IMPORTED CASTELL

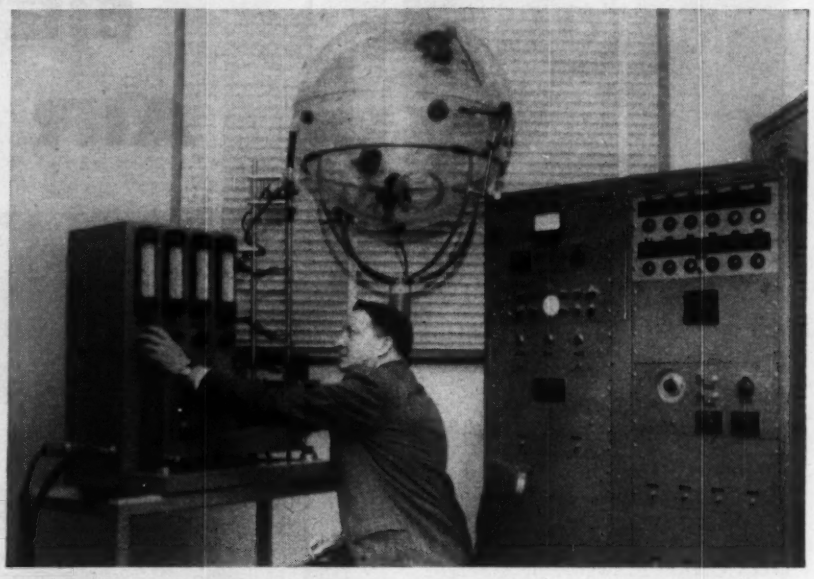
Wood pencil or Imported 9030 Lead and LOCKTITE Holder with new gun-rifled vice-like clutch. (pat. appd. for).

Picture of an indignant man who forgot that poor pencils produce poor tracings—and poor tracings produce poor prints.

Save yourself money and manhours by converting 100% to imported CASTELL, the drawing pencil that lays down more graphite on the line. CASTELL produces cleaner prints, many more prints than any other pencil. Giant aircraft plants have proved it with their own independent tests. Pennies more per pencil will save you many dollars, much irritation. Call your Dealer today.

A.W.FABER-CASTELL
PENCIL CO., INC. NEWARK 3, N. J.

RESEARCH



Airborne Particles Measured, Counted

An electronic instrument that measures and counts microscopic airborne germs, dust, and moisture particles has been developed by an Army Chemical Corps engineer, Nelson E. Alexander, at Camp Detrick, Md.

The device, known as an aerosoloscope, measures and counts airborne particles, one at a time, at the rate of 100 per second. It is equally capable of counting radioactive particles and determining their size.

Mr. Alexander foresees extensive use of the device by public health agencies and industry as well as by the Defense establishment.

"It will not only be helpful to scientists analyzing the contaminated air in some of our cities," Alexander said, "but also to industries and other organizations concerned with particle size control or control of airborne contaminants."

Airborne particles ranging in size from one micron (forty-millionths of an inch) to 64 microns are counted and measured by the aerosoloscope 1,000 times faster than by the ordinary method of collecting them in a medium or on a suitable surface and then examining them under a microscope.

The basic principle of the aerosoloscope is relatively simple. It is based on the phenomenon that the dust particles or "specks" observed in a shaft of light are in fact only reflections of the particles themselves.

As airborne particles in concentrations of up to 15,000 per milliliter pass through the instrument they are diluted and their flow rate is controlled in such a way that each one is individually illuminated.

The reflection caused by the illumination is detected by a photomultiplier tube. Since large particles reflect more light than small ones, the photomultiplier tube, in conjunction with other electronic apparatus, is able to determine the size of each particle.

Electrical impulses created by the photomultiplier tube when it detects reflections are transmitted to a set of 12 dials. The first dial records the number of particles 1 to 1.4 microns in diameter. Each succeeding dial records slightly larger particles than the preceding dial. The twelfth dial records the number of particles 45 to 64 microns in diameter. (The increases are in multiples of the square root of two.)

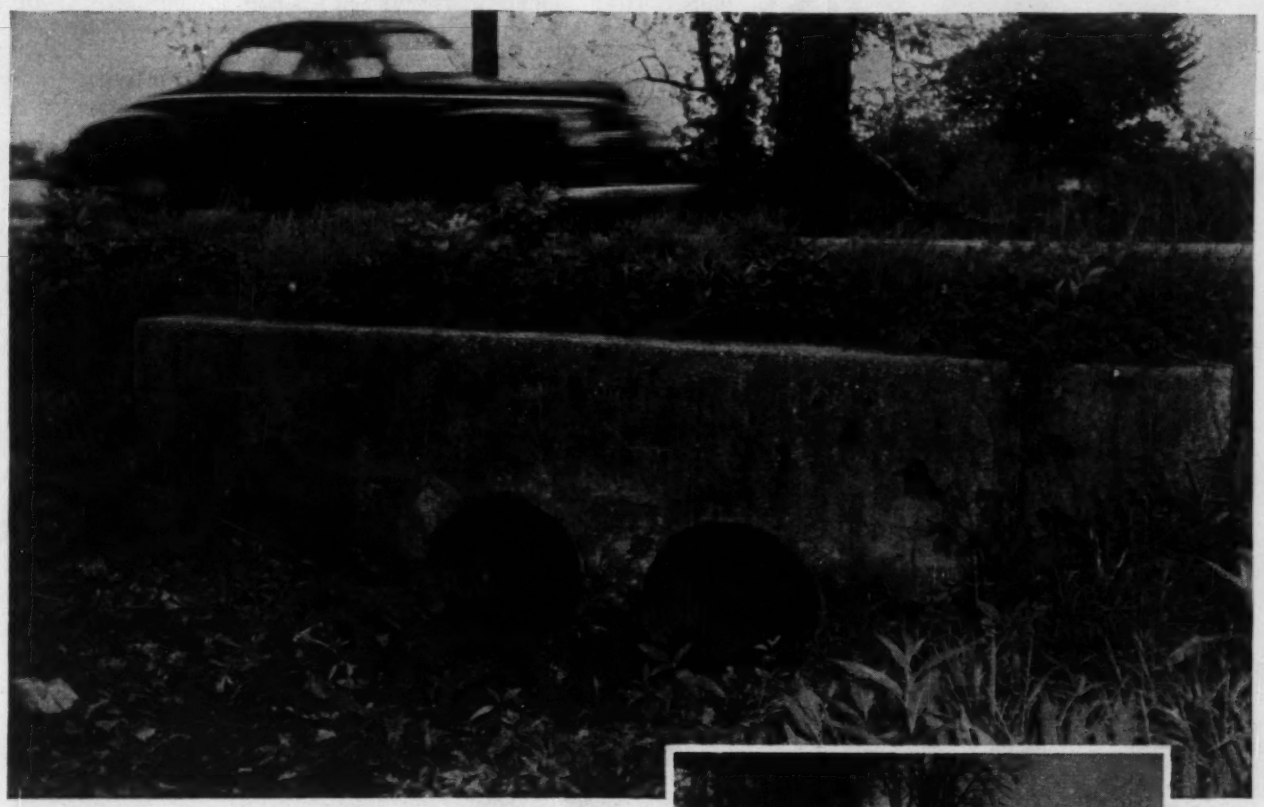
NAHB Tests Dwelling Types in Variety of Price Ranges

The National Association of Home Builders has announced plans for creation of a $2 million housing research village at Grand Rapids, Mich., to test the effectiveness of new ideas in housing design, construction and materials.

Although Grand Rapids is in the North Central region, the houses will be built insofar as possible to typify the architectural patterns currently popular in the several geographical sections of the United States. The builders will use brick, stone, wood, metals,

How's this for culvert durability!

Twin Armco culverts withstand 48 years' service; 2 floods



This twin installation of Armco Corrugated Metal Pipe has been providing continuous service since 1907.

Installation remained intact, even though road was washed out twice.

In 1907 these two Armco Corrugated Metal Culverts were installed under a gravel road in southern Ohio—later to become part of the famed Dixie Highway.

By 1920 the road had been washed out twice by floods, yet the durable Armco Culverts were virtually undamaged. Bolted coupling bands between the long pipe sections prevented disjointing.

Then, when the road was widened to accommodate increasing traffic, the two structures were simply extended with additional lengths of Armco Pipe. So they have not only proved to be durable, but adaptable to changes. Today, these two Armco Drainage Structures are continuing to provide low cost drainage, under traffic loads far exceeding those for which they were originally installed.

You can put the advantages of Armco Corrugated Structures under your roads, streets, or wherever you need dependable drainage. Write for complete data. Armco Drainage & Metal Products, Inc., 3825 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO Corrugated Metal Drainage Structures

ARMCO

NEW!
PROPANE
GAS BURNING
FLOODLIGHT
6000 C.P.

- Rugged, weatherized, easily portable, simple to operate, lights with a match.
- Burns 47 to 150 hours on 20 lbs. of gas. Adjustable gas pressure, ½ lb. to 15 lb., varies light to suit job. White light 6,000 c.p. Easily connected to standard 20 lb. gas tanks.
- Height, 48", including tank. Reflector diameter, 14". Weight, including full tank, 64 lb.
- Price $102.50 F.O.B. Chicago. Includes all equipment shown except gas tank.

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FOR SAFE AND SPEEDY HOISTING

Heavy construction calls for heavy-duty blocks and MADESCO blocks combine the performance features developed through 30 years of specialized engineering for the construction field. Heavy steel shells and fittings, heavy iron or steel graphite-bronze, self lubricating sheaves are grooved to give you the maximum return for your rope investment. Sheaves equipped with bronze or anti-friction bearings for easy operation and long service.

Our special service departments will help you with their recommendations. Write for our catalog or consult your equipment dealer who can supply you with MADESCO products.

MADESCO BLOCKS
MADESCO TACKLE BLOCK CO.
EASTON, PA.
Engineered to Serve
Your Special Service Needs

plastics, concrete and combinations of these materials in construction. A similarly wide selection will be used for types of roofing, siding, flooring, windows, doors and storage walls. Various types and designs of plumbing, heating units, electrical equipment, fixtures, appliances, hardware, air-condition and sound control systems will be incorporated in the houses.

Construction of the first 25 houses will start early in 1956, and following their completion, five new houses will be built each successive year until 50 homes have been erected. These then will be replaced at a rate of five annually so that the Center always will be abreast of the latest techniques and developments in the housing and home supply industries.

Three of the first 25 homes—a modern, contemporary and traditional—will be built in the over $35,000 price bracket. Twelve others, in the three foregoing styles together with homes of Provincial, Early American, Oriental and Georgian-Colonial architecture, will be built in the $17,500-$35,000 bracket. The remainder will be under $17,000 and will include houses of modern, contemporary, Colonial and Cape Cod architecture. There also will be a prefabricated house and an experimental house in the lower price range.

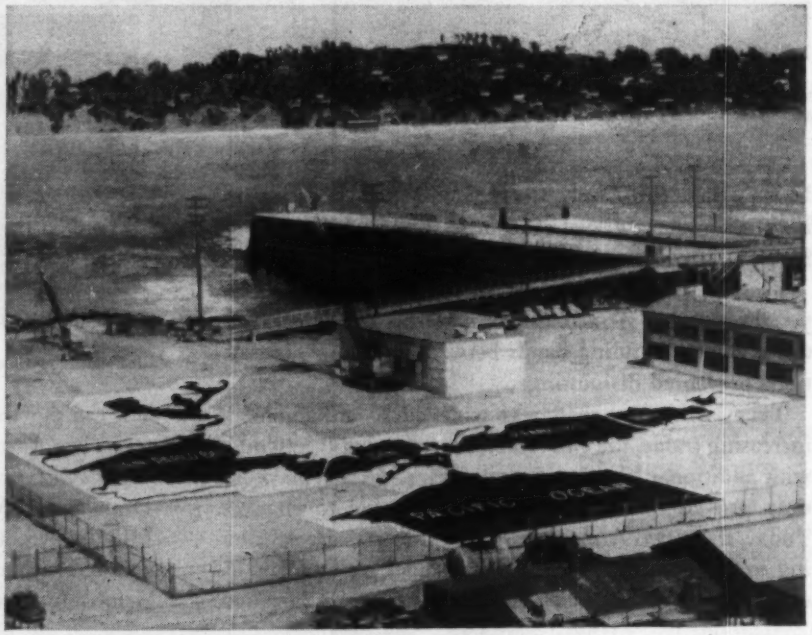
NAHB's Research Institute is sponsoring the unique project, the first of its kind ever undertaken, in cooperation with a Grand Rapids industry and civic group headed by Jason L. Honigman. A. C. Hitchcock, Jr., a Grand Rapids architect and furniture designer, has been named Executive Director of the project.

Removal of Radioactivity From Water Studied by CE

Removal of radioactive contaminants from water supplies by ion exchange slurry is among the latest of methods tested by the Sanitary Engineering Branch of the Corps of Engineer's Research and Development Laboratories, Fort Belvoir, Va.

In the tests conducted by ERDL, commercially available ion exchange resins were added to tap water contaminated with radioactive materials to a level approximating that expected in a water supply after the detonation of a nuclear type bomb.

Tests indicated that under certain conditions the ion exchange batch slurry treatment decontaminates water to a level suitable for emergency drinking purposes within 30 min. Because equilibrium is reached rapidly in the batch treatment it is faster, although sometimes less efficient, than the column type operation in which ion exchange materials are also used.



Model of San Francisco Bay Planned

An overlay has been made on a proposed Sausalito, Calif. site to show how a planned $500,000 scale model of San Francisco Bay would look. The model, scaled 1:100 vertically and 1:1000 horizontally, would be used in a $2.5 million Corps of Engineer study to resolve questions on shoaling, earthen barrier construction, transportation, land reclamation and industrial development dependent on fresh water.

NEW YORK THRUWAY CONTRACTOR ORLANDO SHOWS . . .

how to keep your shovels busy

A. J. Orlando Contracting Co. of Whitestone, New York, won a sub-contract to excavate and move one million yards of earth and rock on the anchor end of the New York Thruway. The job had to be completed before snow and other winter conditions set in—and this meant fast stepping!

To keep cycle time down, dynamic Anthony Orlando set up schedules that would keep the shovels constantly busy with a minimum number of trucks. This was a job made to order for his fleet of Mack six-wheel dumpers, bolstered by five new Mack LJSW-X six-wheelers.

Despite heavy rains and unusually soft going, the contract was carried out at a rapid pace to a successful conclusion. Says President Orlando, "For jobs like this, Macks are the only trucks I can afford to operate."

Macks are the mainstays of many a contractor who must keep up fast and uninterrupted hauling schedules. The famous Mack Balanced Bogie provides sure-footed traction in soft or slippery going. And when it comes to shrugging off punishment, Macks are in a class by themselves.

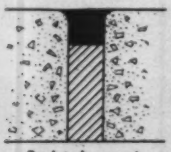
Have your Mack branch or distributor show you why, like Mr. Orlando, you can't afford *not* to operate Macks.

MACK TRUCKS Empire State Building, New York 1, N. Y.

Stop JOINT SEAL FAILURES USE HOT POURED PARA-PLASTIC

• Keeps joint sealed under severest conditions of traffic, temperature

• May be pumped directly into joint from melting kettle



Resists bumps in warm weather

Maintains bond in sub-zero temperatures

Nothing equals the joint sealing performance and protection of Servicised Para-Plastic. Stable, constant in volume, Para-Plastic is a rubberized asphalt compound that maintains bond at normal and sub-zero temperatures. Field proven — widely used, it's the most effective joint seal on the market.

Write for details on Para-Plastic and simple, low cost application method.

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"BOOK OF THE YEAR!"

Brand new Barber-Greene "848 Series" Catalog! Explains, illustrates basic B-G high-capacity plant combinations. Tells about all components. Covers high-type, intermediate, stabilization and road mixes. Definitely belongs in your bituminous "library." Get your copy. Write today.

BG BITUMINOUS PLANTS

see your B-G distributor or write

Barber-Greene
AURORA, ILLINOIS, U.S.A.

FIELD AND OFFICE

Photo courtesy L. B. Foster Co.

Steel Sheet Piling Aids in Sewer Job

The use of steel sheet piling proved to be a practical answer in permitting the safe construction of an outfall relief sewer which had to cross 14 ft under the Los Angeles River.

The problem confronting the contractor was solved by first blocking off the river with earth with large diameter pipes installed over the fill to permit passage of water.

Next, the contractor excavated a 330-ft long, 10-ft wide, 14-ft deep trench—shoring up the trench walls with the sheet piling. Once the piling was in place, the installation of the sewer pipes in the trench was completed without difficulty.

The sewer, constructed by Vido Artukovich & Son, Inc., El Monte, Calif., measures 5,100 ft long and consists of a 30-in. and 27-in. clay pipe placed at an average depth of 20 ft. Approximate cost of the project is reported as $233,000.

Nine Tips for Lowering Bids on Steel

Many bids on steel framing are higher than necessary because design drawings did not indicate accurately exactly what was required and the steel fabricators were compelled to be extra conservative in preparing bids, to make sure they don't lose money. Here are some tips, based on my experience as a steel estimator, on how to get better steel prices:

1. Make steel drawings as complete as possible before submitting them.

2. Make lines sharp and lettering clear and easy to read.

3. Indicate clearly sizes of all beams and columns. It's a good policy to show the size of a member only once. For example, on a plan view mark the beam 12 WF 27, and on all other views that show it, omit the weight; just letter in 12 WF.

4. Show bracing sizes and elevation and note the number of rivets or bolts required.

5. Take sufficient wall sections to show all girts and bracing. If only a few details are indicated, the estimator may have to assume that they are typical, since he rarely has time to investigate all connections.

6. Detail roof trusses with notes to cover exact design requirements. Sometimes the designers want joints to develop actual design stresses and at other times, full allowable design stresses.

7. Give complete weld sizes and amount of welding desired.

8. Show a complete detail of a typical column base. The great variety of column bases used can cause a wide variation in fabrication costs.

9. Separate clearly structural steel from miscellaneous metal and ornamental iron, which generally are furnished by different subcontractors.—J. G. Bedford, Phoenix Bridge Co., Phoenixville, Pa.

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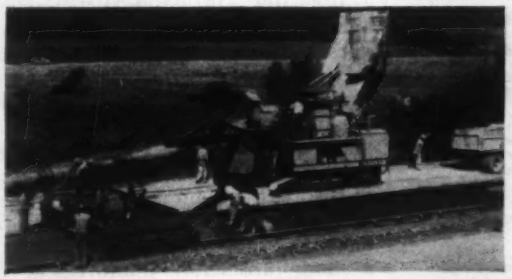
Give consideration to replacing your single drum machines before spring work opens up—and if you are planning on new equipment let a MultiFoote Man tell you more about this record making paver.



● A MultiFoote DuoMix establishing the Pennsylvania Turnpike record of a mile of 9 in., 12 ft. lane in 13 hours on the eastern extension.

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Limits on Engineer's Right To Make Changes In Work

A contract for the construction of additional runways on a city-owned airport contained a provision to the effect that the engineer reserved the right to make such changes in the work as he might consider necessary or advisable to complete the work, provided that such changes did not change the estimated cost of the work by more than 25 percent.

After the work was started, the engineer eliminated part of the work between the existing runways and the new ones that were to be built under contract because the city could not deliver the site for that part of the work. The elimination of that part of the work created a gap between the existing runways and those being built under the contract which gap made access to the work difficult and greatly increased the cost of performing the work called for by the contract.

The contractor brought an action to recover such increased costs. The city claimed, that the engineer, under the terms of the contract had the right to eliminate that part of the work since the estimated cost of the part of the work that was eliminated amounted to only 20 percent of the estimated cost of the entire job. But the court concluded that the elimination of that part of the work was not necessary or advisable, since a contract for performing the same was later made with another contractor. Consequently it allowed the contractor a recovery.[1]

The court in its opinion stated: "The power vested in the engineer to effect changes in the quantities of the work is not so extensive as to enable him to abrogate or change the contract which the parties executed. Brown v Coffee, 17 Cal. App. 381, 121 P. 309, 311; Monson v. Fischer, 118 Cal. App. 503, 5 P. 2d 628, nor does it authorize defendant to employ such right to defeat the object of the contract which is reasonably deductible from its terms. The changes which may be ordered when viewed against the background of the work described in the contract and the language used in the specifications, must clearly be directed either to the achievement of a more satisfactory improvement or the elimination of work not integrally necessary to the project. The purpose of such powers is to maintain a degree of flexibility in adapting conditions to the end sought. However, the

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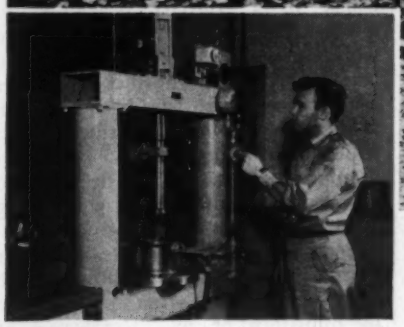

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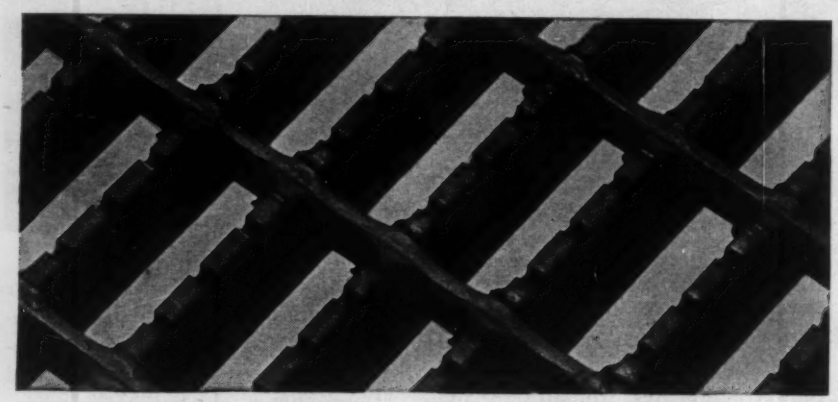

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discretion committed to the engineer must be exercised within the framework of the contract and for the purpose of implementing the work originally intended. It cannot be used in an arbitrary manner, divorced from the object and intention of the contract, for the purpose of legitimizing the deletion of so integral a part of the work as to leave the improvement in an unfinished condition and still insulate the city from liability. Langan Const. Corp. v. State, 110 Misc. 177, 180 N.Y.S. 249,252; Drainage District No. 1 v. Rude, 8 Cir., 21 F. 2d 257,261. Such a construction would render nugatory plaintiff's fundamental rights under the contract and give to defendant an unconscionable advantage plainly not intended. As we have indicated, the whole scheme of the contract repels the idea that defendant was to have the right to delete work necessary to the project and leave the project in an unusable and incomplete state.

"It is conceded by both sides that there are no California cases which have considered the question presented in plaintiff's first cause of action. Nevertheless, there is a plethora of cases from other jurisdictions involving the right of a governmental body to avail itself of an analogous clause in a contract providing for alterations in or omissions from a work of public improvement. An analysis of these authorities establishes unmistakably that this type of provision confers a circumscribed right, which may be properly invoked when it appears necessary and desirable to do so in the interests of completing more satisfactorily the project envisaged by the contract; it has never been held to justify a vitiation of the clearly expressed contractual objective by omissions of an integral part of the work required to accomplish the project. Litchfield Const. Co. v. City of New York, 244 N.Y. 251, 155 N.E. 116; McMaster v. State, 108 N.Y. 542, 15 N.E. 417; Langan Const. Corp. v. State, 110 Misc. 177, 180 N.Y.S. 249; Drainage District No. 1 v. Rude, 8 Cir. 21 F. 2d 257; Herlihy Mid-West-Continent Co. v. Sanitary Dist., 390 Ill. 160, 60 N.E. 2d 882; Schuehle v. City of Seattle, 199 Wash. 675, 92 P. 2d 1109; Murray v. Kansas City, 47 Mo. App. 105. See Gaffey v. United Shoe Machinery Co., 202 Mass. 48,88 N.E. 330, 331. These cases are clear authority for the proposition that a contract provision similar to the one before us may not be invoked to allow deletions from a construction contract which were not made for the purpose of a satisfactory

completion of the project, but as an attempt by defendant to exculpate itself from its obligation of counter-performance.

"Defendant relies on two cases. Del Balso Construction Corp. v. City of New York, 278 N.Y. 154, 15 N.E. 2d 559,561, is clearly distinguishable in that the right was reserved '. . . to omit any portion of the work without constituting grounds for any claim by the contractor for payment or allowances for damages. . . .' No such sweeping, unrestricted power is granted in the contract here under consideration. In fact, the court states that this broad omission clause was made a part of the standard-form city contract 'only after it had been held that the city could not with impunity omit certain work under the old form of contract.' 15 N.E. 2d at page 561. It was also stressed that the work omitted did not detract from the ultimate purpose of the contract, which was a completed subway. In Kinser Construction Co. v. State, 204 N.Y. 381, 97 N.E. 871, 874, plaintiff contracted to build a section of a canal, including a lock which was to be built at a particular point. The state reserved 'the right . . . to make such additions to or deductions from such work or changes in the plans and specifications covering the work, as may be necessary. . . .' It was found the condition of the soil made it impossible to construct the lock at the designated site; consequently this work was deleted from plaintiff's contract and the lock was relocated in an area where the work was being performed by another contractor. No recovery was allowed plaintiff for loss of profits caused by reason of the deletion. This situation differs vitally from the case at bar. In the Kinser, the work was eliminated from defendant's contract because it was necessary to relocate the lock in order to complete the canal project. The deletion subserved the purpose of the contract, and came within the language and spirit of the alteration and omission clause. In the instant case, the deletions left a substantial part of the project unfinished (necessitating the subsequent letting of a new contract) and were ordered simply because defendant could not furnish the job site required by the contract."[1]

(1) Hensler v. City of Los Angeles, 268 P. 2d 12, District Court of Appeals of California, March 23, 1954.

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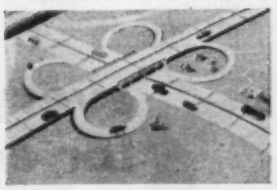

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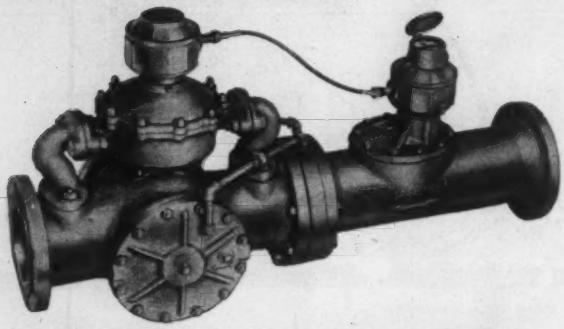

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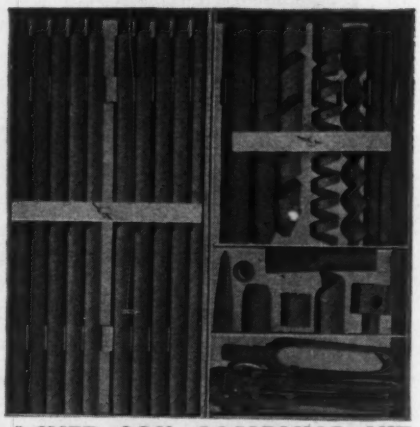

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OBITUARIES

Paul V. Hodges, 71, veteran of 40 years federal service as a civil engineer, died Feb. 25 in Denver. He had served with the U. S. Geological Survey, Indian Service, and Corps of Engineers before retirement in January, 1954. He received his civil engineering degree from the University of Wisconsin and early in his career was city engineer at Monroe, Wis.

John W. Jones, 55, chief of the Bureau of Engineering, New York City Department of Public Works, died in Daytona Beach, Fla., Feb. 28. He came to the U. S. from Mintara, Australia, was graduated from Villanova College, and became a resident of Monroe, N. Y.

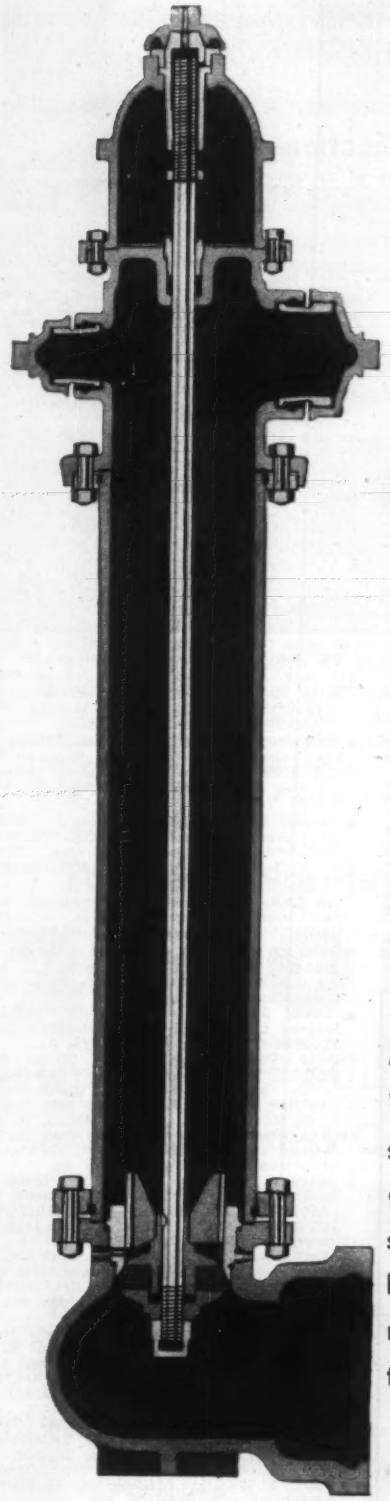
Berton M. Laughead, 79, former engineer in charge of the central division of the Pennsylvania Railroad, died Feb. 27 in Upper Montclair, N. J. He supervised bridge and tunnel construction for the railroad before retiring 10 years ago.

Benjamin J. Baskin, 63, chief engineer of Concrete Products Co. of America, and a pioneer in the development of pretensioned prestressed concrete bridges, died Feb. 15. He was a 1914 graduate of Pennsylvania State College, and at one time was associated with Henry W. Horst Co. as chief engineer in the construction of Philadelphia's Eighth Street subway.

Kenneth A. Barker, Sr., 70, veteran contractor of Louisville, Ky., and chairman of the board of directors of Louisville Asphalt Co., died Feb. 21. He helped establish a sewer construction business in 1909 and formed his own contracting company in 1911. In 1925 he became owner of the asphalt firm and served as president until 1951.

Martin A. Kinsella, 48, an engineer with E. I. du Pont de Nemours & Co., died Feb. 21 in Wilmington, Del. He was serving in the design division of the engineering department.

John G. Little, 74, San Francisco structural engineer, died Feb. 26. His career in San Francisco included partnership in Barker, Little & Hall, consulting engineering firm; superintendent of building inspection for the City and County of San Francisco; and consulting engineer for the Golden Gate Bridge District. He received his engineering degree from the University of Alabama.



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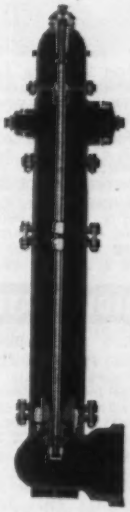

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **N. H., Portsmouth**—ARMAMENT-ELECTRONICS SHOPS—BA 3/11—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., armament and electronics shops, Portsmouth Air Force Base, ENG-19-016-55-87. $700,000-$800,000. Plans deposit $10. Whitman & Howard, 89 Broad St., and Ganteaume & McMullen, 99 Chauncy St., Boston, Mass., engrs. CD 2/16.

BIDS ASKED—BUILDINGS

▲ **Conn., Norwalk**—SCHOOL—BA 3/22—City, Bd. Educ., c/o supt. Schools, Norwalk, Junior High School, West Rocks Area. $1,267,600. Plans deposit $50. Gilroy & Godosh, 64 Wall St., archts. CD 2/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord,

Mass. Northern Constr. Corp., 588 Essex St., Lawrence, Mass., LB $675,650, 7,136.5 ft. concrete, steel piling seawall at Hampton, Rockingham Co.;

Weaver Bros. Constr. Co., Inc., 259 S. Main St., Concord, N. H., LB $173,467, Class C-2 road mix pavement (aggregate 40) 1.951 mi. at Pelham, Hillsboro Co. Bids Mar. 3. CD 2/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Rich Brothers Constr. Co.**, 410 Park Square Bldg., Boston, Mass. LB $1,218,213. William E. Russell District Elementary SCHOOL, Dorchester, BOSTON, MASS. City, Dpt. School Bldgs., 26 Norman St., Boston, Mass. Bids Mar. 3. CD 2/14.

Sewell & Smith Constr. Co., Irving Square, Framingham, Mass. CA $521,000. Elementary SCHOOL, Liberty St., DANVERS, MASS. Town, School Dpt., Danvers, Mass. CD 2/18, under LB.

Jefferson Constr. Co., 75 First St., Cambridge, Mass. LB $664,176. HIGH SCHOOL, Packard St., HUDSON, MASS. Town, High St., Hudson, Mass. Bids Feb. 28. CD 2/11.

Bossi Constr., Inc., 43 Elder St., Dorchester, Mass. LB $620,128, est. $550,000. M-402 Contr. 1 SERVICE BLDG. addn., Walter E. Fernald State School, Waverly section of Belmont, WALTHAM, MASS. State, Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Mar. 3. CD 2/16.

▲ **Aunt HackRidge, Inc.**, c/o Paul Kovacs & Co., Inc., Bethel, Conn. Owner Builds. $4,000,000. 200 RESIDENCES, both sides Aunt Hack's Rd. between Mill Plain and West Lake Roads, DANBURY, CONN.

▲ **Fusco-Amatruda Co.**, 59 Amity Rd., New Haven, Conn., LB, $1,680,280. JUNIOR HIGH SCHOOL, Newhall St., HAMDEN, CONN. Town Bd. Educ., 2040 Dixwell Ave., Hamden, Conn. Bids Mar. 2. CD 2/11.

▲ **Blitman Constr. Corp.**, 101 Park Ave., New York, N. Y., CA, $2,460,500, moderate rental HOUSING, Proj. MR 55, STAMFORD, CONN. City Housing Auth., 100 Myano Lane, Stamford, Conn. Bids Feb. 15. CD 2/18, under LB.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

▲ **Pa., Phila.**—HOME FOR INDIGENT—BA 3/21—Dpt. Procurement, City Hall Annex, Riverview Home for The Indigent addn., storm, sanitary and water lines. $2,558,845. Alfred Claus, 1810 Rittenhouse Square, archt. Gilboy, Delante & Claus, 1810 Rittenhouse Square, engrs. CD 7/2, under LB.

▲ **Md., Baltimore**—SCHOOL—BA 3/23—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, West Southwest Senior Junior High School, Athol and Edmondson Ave. $2,500,000. Plans deposit $100. Fisher, Nes & Campbell & Assoc., 1020 St. Paul St., archts. Whitman, Requardt & Assoc., 1304 St. Paul St., mech. engrs. VanRensalaer Saxe, 1701 St. Paul St., struct. engr. CD 4/1/52.

▲ **N. J., Jersey City**—ADMINISTRATION—BA 4/14—Board Freeholders, Hudson Co., Freeholders' Assembly Chamber, Hudson Co., Court House, Newark Ave., Contract No. 2, general construction work; Contract No. 3, structural steel and ornamental iron work; Contract No. 4, plumbing and gas fitting and kindred work; Contract No. 5, steam and hot water heating and ventilating apparatus work; Contract No. 6, electrical work; Contract 7, elevator work, for Hudson County Administration Bldg. Plans deposit $50. Extended date. Mascolo & Masumian, 880 Bergen Ave., Jersey City, archts.; adv. ENR 3/17. CD 2/1.

SOON LETS CONTRACT—BUILDINGS

Pa., Jenkintown—STORE—Aaron Colish, archt., 117 S. 17 St., Phila., soon lets contract department store for Corporation, c/o Earl J. Gratz, Girard Trust Bldg., and Lawrence Brunswick, 1315 Walnut St., both Phila. $500,000. CD 3/31/54.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Arundel Corp.**, foot of Fulton St., Brooklyn, N. Y. LB $1,194,216, dredging and rock removal to depth of 37 ft. below mean low water involving removal approx. 80,400 cu. yd. place measurement of ledge rock, 29,400 cu. yd. place measurement of material other than ledge rock from New York and New Jersey Channels, Sect. 4, Rock Area 15, Middlesex Co., N. J., Serial CIVENG-30-075-55-38, NEW YORK-NEW JERSEY. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Mar. 3. CD 2/18.

† **Jack & Jim Maser Corp.**, Brownstown, Pa., CA $990,900, constr. two dike embankments, excavate 2,600,000 cu. yd. earth, Robinson Bay Lock, Long Sault Canal-Seaway, near Massena, St. Lawrence Co. CIVENG-30-023-55-40, NEW YORK, N. Y. U. S. Eng., Niagara and Bridge Sts., Buffalo 7, N. Y. Bids Feb. 3. CD 2/18, under LB.

† **C. J. Langenfelder & Son, Inc.**, P.O. Box 5106, Baltimore, Md., LB, $754,736, hangar addns., taxiway extens., etc., Dover Air Force Base, ENG-36-109-55-41, DOVER, DEL. U. S. Eng., 2635 E. Abbottsford Rd., Phila., Pa. CD 11/6/53.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Brown-Turner, Inc.**, 205 E. 42 St., New York, N. Y., CA $3,391,380, general constr.;

E. W. Tompkins Co., Inc., 123 Sheridan Ave., Albany, N. Y., CA $664,437, heating and air-conditioning;

George J. Martin & Son, 20 Market St., Albany, N. Y., CA $562,950, electrical work for new STATE OFFICE BLDG. development for Department Commerce and Department Civil Service, Campus Site, ALBANY, N. Y. Grand total $4,618,767. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Jan. 20. CD 1/26, under LB.

▲ **Windmill Farm Homes**, c/o Herman York, archt., 90-04 161 St., Jamaica, N. Y. Owner Builds. $24,000,000. 700 HOUSES, 1,000-acre tract, Rte. 22, ARMONK, N. Y.

▲ **Seaview Village**, c/o Waxman Brothers, 17 Neptune Ave., Brooklyn, N. Y. Owner Builds. $30,000,000 2,000 HOUSES and SHOPPING CENTER, 215-acre tract bounded by Rockaway Parkway, Seaview Ave., Fresh Creek Basin and Avenue J, BROOKLYN, N. Y.

▲ **415 Madison Ave. Inc.**, S. Rudin, pres., 36 W. 44 St., New York, N. Y. Separate Contracts. $2,173,160, 24 story OFFICE, 415 Madison Ave., NEW YORK, N. Y. CD 9/23.

Milton Kestenberg & Assocs., 220 W. 42 St., New York 36, N. Y. Owner Builds. $500,000. 12 story APARTMENT, 12 Beekman Pl., southwest corner 50 St., NEW YORK, N. Y. Hippolyte Kamenka, 101 Park Ave., New York 17, N. Y. archt.

Scarsdale Acres Homes, c/o Joshua Huberland, archt 200 W. 57 St., New York 19, N. Y. Owner Build $675,000, 15 HOUSES, tract at Harvest Dr., o Mamaroneck Rd., SCARSDALE, N. Y.

▲ **Thornwood Acres, Inc.**, c/o Lloyd B. Cox, Bedford Hills, N. Y. Owner Builds. $1,350,000. 85 HOUSES, 43-acre tract, Westchester Ave. and Nannahagen Rd., THORNWOOD, N. Y.

▲ **H. Goodfellow, Sr.**, 130 Silver Lake Dr., Clementon, N. J. Separate Contracts. $1,300,000. RESIDENTIAL DEVELOPMENT, Ellis Ave., BERLIN, N.J . William Dean Faint, Pennsauken, N. J. archt.

▲ **R. C. Altman**, 7507 Ventnor Ave., Margate, N. J. Separate Contracts, $1,480,000. RESIDENTIAL DEVELOPMENT, Cumberland Rd., MILLVILLE, N. J.

Millville Villa, 613 White Horse Pike, Haddon Heights, N. J. Separate Contracts, $700,000. RESIDENTIAL DEVELOPMENT, Reick Ave., MILLVILLE, N. J. William Duble, Erlton, N. J. archt.

▲ **Hollybrook Enterprises, Inc.**, c/o Harry Thoens Corp., 233 Broadway, New York 7, N. Y. Owner Builds, $1,000,000, Hollybrook Plaza Shopping Center, 36-acre tract at Route 38 and Eayrestown Rd., MOUNT HOLLY, N. J.

▲ **Glendale Building Corp.**, 1 S. Broad St., Woodbury, N. J., Separate Contracts, $4,000,000. RESIDENTIAL DEVELOPMENT, Evergreen Park Homes, SEWELL, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Clower Constr. Co., Forrest Garden Apartments, Ambler, Pa., Separate Contracts. $720,000. RESIDENTIAL DEVELOPMENT, Swedesford Rd., AMBLER, PA.

Wallace Eng. & Constr. Co., Bryn Mawr, Pa., CA $500,000. OFFICE BLDG. and parking area, 232 E. Lancaster Ave., ARDMORE, PA. Owner, c/o Wallace & Warner, archts.-engrs., Bryn Mawr, Pa.

▲ **Berwyn Downs, Inc.**, Waterloo Rd., Berwyn, Pa. Separate Contracts. $1,425,000. RESIDENTIAL DEVELOPMENT, Waterloo Rd., BERWYN, PA.

Nicholas LeDonne, 111 St. Clair Ave., Clairton, Pa., LB $630,000, general constr. Secondary SCHOOL Bldg. for the Forbes Joint School Bd., Quemahoning Twp. KANTNER, PA. State Public School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Mar. 3. CD 2/2.

Louis J. Brandolini, 252 Long Lane, Upper Darby, Pa. Separate Contracts. $500,000. RESIDENTIAL DEVELOPMENT, Radnor Twp., WAYNE, PA.

†-**Baltimore Contractors, Inc.**, 711 S. Central Ave., Baltimore 2, Md. CA $639,462. fire control testing LABORATORY, ENG-18-020-55-34, ABERDEEN PROVING GROUND, MD. U. S. Eng., P.O. Box 1715, Baltimore 3, Md. CD 3/2, under LB.

Wildberger-Best Constr. Co., 2025 E. North Ave., Baltimore 13, Md. CA $863,000. concrete, steel, masonry Sinclair Lane Elementary SCHOOL, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. CD 3/3, under LB.

William L. Crow Constr. Co., 101 Park Ave., New York 17, N. Y. CA $900,000. 5 story, 36x152 ft., rein.-con. brick MARIAN RETREAT HOUSE with attached chapel on grounds of Seton Institute, BALTIMORE, MD. Sisters of Charity of St. Joseph, c/o J. Gerald Phelan, archt., 211 State St., Bridgeport, Conn.

Anthony S. Sanzo, RFD, Dunlaney Valley Rd., Towson 4, Md. Separate Contracts. $600,000. 24 brick HOMES, Dumont Rd., Valley Crest Section, TOWSON, MD.

▲ **Essex Builders, Inc.**, New Castle, Del., Separate Contracts, $2,000,000. RESIDENTIAL DEVELOPMENT, Harmony Hills, WILMINGTON, DEL.

▲ **Essex Builders**, 219 Delaware Trust Bldg., Wilmington, Del., CA $1,250,000. RESIDENTIAL DEVELOPMENT, Midvale, WILMINGTON, DEL. Madison Constr. Co., 3410 Madison St., Wilmington, Del.

▲ **Mace Properties, Inc.**, 3853 Wilson Blvd., Arlington, VA. Owner Builds. $1,697,400. 138 frame detached HOMES, South Lawn addn., Indianhead and Livingston Rd., OXON HILL, MD. Harry Ormston, S. Langley Lane, McLean, Va., archt. S. Machen, Hyattsville, Md., engr.

▲ **American Constr. Co.**, 261 Constitution Ave. N.W., Wash., D. C. LB $1,414,400. Wheaton Junior High SCHOOL, Wheaton, ROCKVILLE, MD. Montgomery Co., Bd. Educ. Rockville, Md. Bids Mar. 3. CD 2/7.

E. I. du Pont de Nemours & Co. Inc., du Pont Bldg., Wilmington, Del. Own Forces. $500,000. "Freon" Research LABORATORY, Chestnut Run, near WILMINGTON, DEL. CD 8/21/46.

(Continued on page 74)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

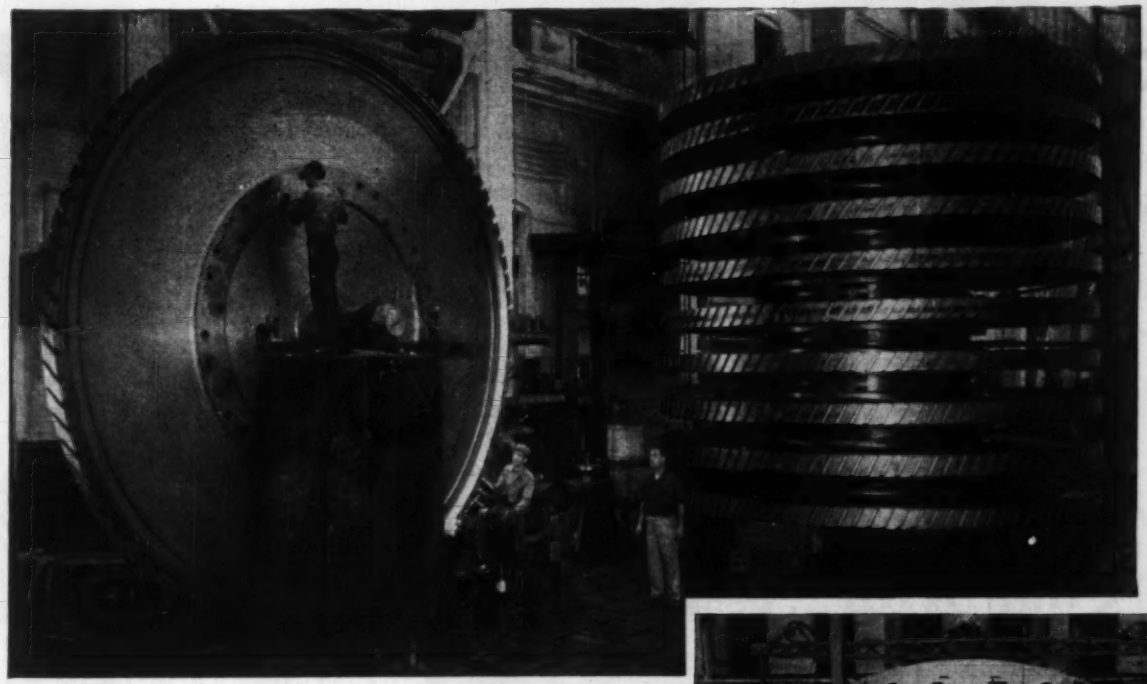
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

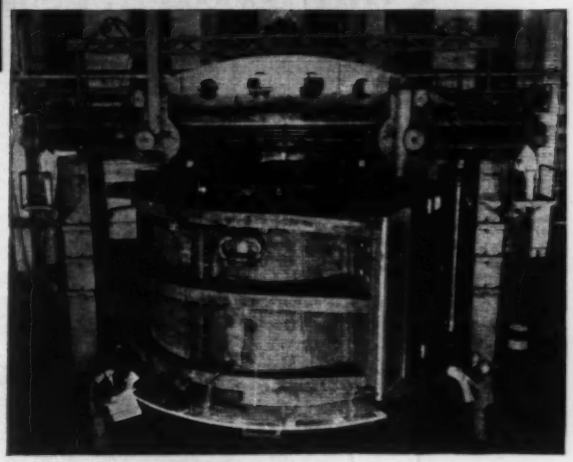
Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.



Rotor discs for mammoth 11-stage compressor were balanced and stacked for alignment in one of Newport News' five huge machine shops. Large engineering and technical staffs with a vast plant make Newport News an ideal source for large equipment . . . *standard or special in design.*



A 35-foot boring mill in Newport News' plant machining the 374,000-pound upstream housing for the giant axial flow compressor. The compressor is heart of an 8-foot supersonic wind tunnel at the Ames Aeronautical Laboratory of the National Advisory Committee for Aeronautics at Moffett Field, Calif.

To create winds exceeding

2000 MPH

Newport News builds world's Mightiest Compressor

Whenever you want large units built with careful attention to detail, give the job to Newport News.

This company recently built an eleven-stage axial flow compressor that shatters all previous records for wind force . . . using what is believed to be the world's largest rotating object.

The rotor, weighing more than 400 tons, comprises eleven huge discs. Each disc, machined from a 96,000-pound forging, was finished to a 50,000-pound wheel and balanced to within 26 ounces at the rim. In each rim, slots for blades were machined to within .005″ on special milling heads designed and produced in the Newport News plant.

Here at Newport News, you'll find more than large productive capacity. In machine shops, foundries and forging plants Newport News craftsmen complete your orders with specialized techniques backed by experience in fabricating thousands of products.

Newport News' craftsmen produce units that range from small components of spinning machines, to mammoth hydraulic turbines . . . from piping, pumps and valves, to vacuum tanks, digesters and bridge caissons.

These skilled men handle the job exactly as you want it done, for maximum results per dollar invested. So let us bid on your present or future projects. Learn how Newport News can help you. Send for our illustrated booklet entitled, "Facilities and products" . . . it's your for the asking.

Newport News

Shipbuilding and Dry Dock Company

Newport News, Virginia

(Continued from page 72)

SOUTH

BIDS ASKED—BUILDINGS

▲ Ky., Lexington—APARTMENT—BA 3/31—State, Div. Purchases, Frankfort, 13 brick apartment bldgs., 333 units, central laundry heating plant for each, $2,750,000, Brock & Johnson, 159 Barr St., archts. CD 9/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Thomas D. Nolan, 4017 S. Brook St., Louisville, Ky., CA $3,575,424, sewerage collection sys. imprvs., lift stations, force mains, sewage treatment plant, and outfall within the limits of city, NORTH MIAMI, FLA. City, City Hall, North Miami, Fla. Bids Feb. 1, awarded Mar. 1. CD 2/7, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Mace Properties, Inc., 3853 Wilson Blvd., Arlington, Va., Owner Builds. $25,000,000-$30,000,000. 2,000 brick detached HOMES, SHOPPING CENTER, etc. 916-acres, ANNANDALE, VA. Harry E. Ormston, S. Langley Lane, McLean, Va., archt. Basil M. DeLashmutt, Court House Square, Arlington, Va., and Masey Engineers, Fairfax, Va., engrs. Pierre Ghent & Assoc., 1836 Jefferson Pl. N.W., Wash. D. C., land planning.

† Gordon H. McKewin, 4404 Fernhill Ave., Baltimore, Md., CA $620,804, Base Bid 4 total of Base Bids 1, 2 and 3 Central BOILER PLANT addn., underground steam distr. sys., ENG-49-080-55-36-(35), FORT BELVOIR, VA. U. S. Eng., 1st and Douglas Sts. N.W. Wash. 25, D. C. Bids Feb. 15, awarded Mar. 1. CD 2/28, under LB.

Mottley Constr. Co., Farmville, Va., LB $538,400. High and Elementary SCHOOL and sewage plant, New Bohemia, HOPEWELL, VA. Prince George County School Bd., Hopewell, Va. Bids Feb. 28. CD 2/15.

▲ Robert L. Turchin, Inc., 1835 Purdy Ave., Miami Beach, Fla., CA $2,500,000. 14 story, 225x270 ft. steel, Seville HOTEL and CABANAS, POOL and COFFEE SHOP, MIAMI BEACH, FLA. Crosby Corp., 250 W. San Marino Dr., Miami Beach, Fla. Awarded Mar. 4. CD 1/27.

▲ M & D Constr. Co., Bossier City, La. CA $1,500,000. 150 HOMES subdivision, BOSSIER CITY, LA. Allen C. Montgomery, 708 Barksdale Blvd., Bossier City, La. Awarded Feb. 28.

▲ H. G. Whittenberg Constr. Co., 2214 S. Floyd St., Louisville, Ky. Owner Builds. $3,360,000. 280 brick, stone veneer HOUSES, LOUISVILLE, KY.

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In Canada, Roly-Door Distributors, Ltd., 1330 Bloor Street W., Toronto 4, Ont.

MIDDLE WEST

BIDS ASKED—BUILDINGS

▲ O., Cleveland — LABORATORY — Bids Asked — Union Carbide & Carbon Corp., Box 6087 (selected list of bidders) research and administrative center, 66-acre site, near Snow Rd. and W. 130 St., in Parma. $4,000,000. Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y., archts. The Austin Co., 16112 Euclid Ave., East Cleveland, Zone 12, engr. H. R. Holman, c/o owner, engr. CD 11/30.

SOON LETS CONTRACT—BUILDINGS

▲ Ill., Chicago—APARTMENTS—Herbert S. Greenwald, 135 S. La. Salle St., Zone 3, soon lets contract four 27 story, 750-units, apartments $10,000,000. Friedman, Alschuler & Sincere, 223 W. Jackson Blvd., Zone 6, archts. CD 1/28.

▲ O., Napoleon—PLANT—Campbell Soup Co., 100 Market St., Camden, N. J., soon lets contract mfg. plant, near here. $9,000,000. Lockwood Greene Engineers, 10 Rockefeller Plaza, New York 20, N. Y. engrs. CD 1/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., Columbus, Zone 15,

Claude A. Janes, Box 127, Chesterhill, O., LB $224,789, est. $252,008, Type T-32 on B-119, 0.828 mi. SR 124-0.06, (52-05), (53.15) (55.41), S-29 (3), Athens and Meigs Counties;

Elmer Borchardt, Inc., Castalia, O., LB $99,860, est. $102,700, Type T-35 1.496 mi. SR 269-9.21, S-38 (3), Erie Co.;

Harper Supply, Inc., 118 W. Front St., Napoleon, O. LB $206,825, est. $211,100, Type T-35 and structures 1.379 mi. SR 49-13.99, S-124 (5), Mercer Co.;

Penker Constr. Co., 1030 Summer St, Cincinnati, O. LB $1,078,519, est. $1,281,000. Type T-50 on B-70 and structure 0.185 mi. SR 48-13.39, F-1044 (3), City of Dayton, Montgomery Co.;

Don S. Cisle, Contractor, Inc., First Natl. Bank Bldg., Hamilton, O., LB $1,197,992, est. $1,278,900, Type T-35 and structure 5.102 mi. SR 73-22.57, 0.00, City of Middletown, City of Franklin, Butler and Warren Counties;

A. J. Baltes, Inc., 11 Olive St., Norwalk, O., LB $1,393,989, est. $1,815,600, Type T-71, T-35 and structures 4.045 mi. USR 250-(10.83-13.34), SR 113-(5.83) (6.04), SR 299-0100, Village of Milan, Erie Co.;

John R. Jurgensen Co., Round Bottom Rd., Newtown, O. LB $94,423, est. $91,000. Type T-35, 1.689 mi. SR 0-(10.81-11.55), Village of Arlington Heights, Cities of Cincinnati and Lockland, Hamilton Co.;

Earl E. Sockman, R.F.D. No. 1, Fredericktown, O. LB $104,813, est. $130,700, Type T-35 on B-119 and structure 0.643 mi. SR 12-(9.09-9.45), Seneca Co.;

Edgar Spring, Inc., New Philadelphia, O., LB $205,633, est. $256,500, Type T-35, 5.125 mi. SR 93-(8.51-13.70), Tuscarawas Co.;

The McCourt Constr. Co., 720 Home Ave., Akron, O., LB $77,491, est. $90,500, Type T-35 4.906 mi. SR 94-(15.20-15.29), (15.65), City of Orrville, Wayne Co. Bids Mar. 1. CD 1/26.

BUILDINGS

LOW BIDS AND CONTRACTS

Hunkin-Conkey Constr. Co., 1740 E. 12 St., Cleveland, O., CA Approx. $750,000. 73,000 sq. ft. of new PUBLISHING BLDG. addn. on Cleveland News Bldg., E. 18th and Superior Ave., CLEVELAND, O. Forest City Publishing Co., E. 6 and Superior Ave., Cleveland, O. Robert W. Dickerson & Assoc., 2063 E. 4th St., Cleveland, O., archts. CD 10/23/53.

▲ F. A. Wilhelm, 3914 Prospect St., Indianapolis, Ind., CA Total est. $1,200,000, general contract JUNIOR HIGH SCHOOL, north of Fall Creek School, INDIANAPOLIS, Ind. Washington Twp. School Bldg. Corp., 711 Electric Bldg., Indianapolis, Ind. Bids Feb. 9. CD 1/11.

▲ Berling & Son, 212 S. Temple St., Indianapolis, Ind., CA, est. $3,400,000. general contract HIGH SCHOOL, at Nora, INDIANAPOLIS, Ind. Washington Twp. School Bldg. Corp., 711 Electric Bldg., Indianapolis, Ind. Bids Feb. 2. CD 1/10.

▲ Carl Geupel Constr. Co., 1919 N. Meridian St., Indianapolis, Ind., CA, Total est. $1,200,000. general contract JUNIOR HIGH SCHOOL, W. 73 St., INDIANAPOLIS, IND. Washington Twp. School Bldg. Corp., 711 Electric Bldg., Indianapolis, Ind. Bids Feb. 16. CD 1/12.

▲ Ehler & Wenborg Builders Inc., 8 E. McDonald Rd., Mt. Prospect, Ill., Own Forces, $7,000,000. 360 HOMES, area of BARRINGTON, ILL.

▲ Corbetta Constr. Co., 208 S. La Salle St., Chicago 4, Ill., CA $7,998,700, 1066-unit, Cabrini Extension Public HOUSING, Larrabee St., Orleans and Sedgewick Sts., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago 5, Ill. Bids Feb. 1, awarded Feb. 28. CD 2/16, under LB.

▲ Blouin Brothers Builders Inc., 715 W. 111 St., Chicago, Ill., Own Forces, $2,500,000, 200 HOMES, DOLTON, ILL., Nordlie & Co., 11106 S. Michigan Ave., Chicago, Ill., archts.

▲ Merrill Threm Co., 20602 Harper St., Detroit 36, Mich. Owner Builds. $1,850,000. Greendale Subdivision, 150 brick ranch HOMES, Yale, Little Mack and Harper Sts., ST. CLAIR SHORES, MICH.

(Continued on page 76)

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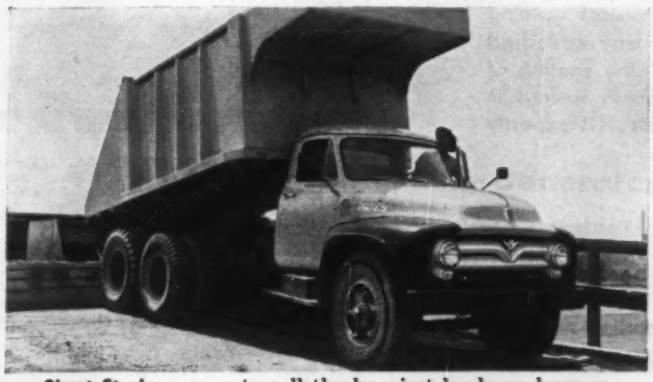

Short Stroke power to roll the heaviest loads on long or short hauls with amazing speed and economy. New Ford T-800 Tandem Axle BIG JOB with 170-h.p. Short Stroke V-8. Power Steering *standard*. New 11,000-lb. front axle at extra cost. 40,000 lbs. GVW, 60,000 lbs. GCW.

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FORD Triple Economy TRUCKS

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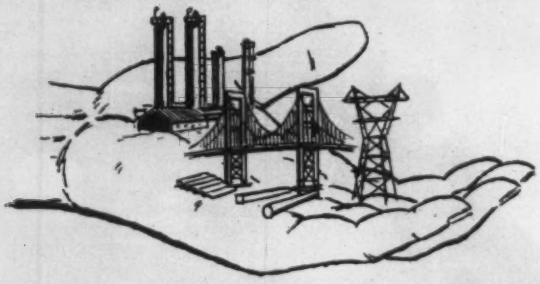

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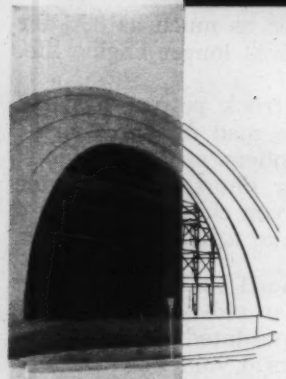

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Affiliate of BAILEY-LEWIS-WILLIAMS

(Continued from page 74)

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Ark., Blytheville**—LABORATORY, etc.—BA 3/29—U. S. Eng., P. O. Box 867, Little Rock, photo laboratory, proficiency training bldg., airmen's service club, headquarters group maintenance and supply bldg., headquarters tactical group bldg., Blytheville Air Force Base, Serial No. ENG-03-050-55-28. $500,000-$1,000,000. Extended date. CD 3/2.

† **Tex., Ellington Air Force Base**—NATIONAL GUARD FACILITIES—BA About 4/1—U. S. Eng., P. O. Box 1229, Galveston, constr. Air National Guard Facilities, ENG-41-243-55-37. $500,000-$1,000,000. CD 6/28.

BIDS ASKED—BUILDINGS

▲ **Mo., St. Louis**—SCHOOL—BA 3/24—Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., brick, rein.-con., Ames Elementary School 2900 Hadley St., $1,000,000. Plans deposit $25, CD 11/19/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Peter Kiewit & Sons Co., 1024 Omaha National Bank Bldg., Omaha, Neb. CA **$543,826.** 8,600 ft. runway, incl. grading, earth moving, drainage, paving, municipal airport just north of BILLINGS, MONT. City, City Hall, Billings, Mont. CD 10/11.

▲† **Malcolm M. Larson**, 4080 Gallapago St., Denver, Colo., CA, **$1,493,268**, Alcova-Gering and Lingle Tap, 115-kilovolt transmission lines, Transmission Div., Missouri River Basin Proj., Spec. DC 4329, WYOMING-NEBRASKA. Bureau Reclamation, Dpt. Interior, Casper, Wyo. Bids Feb. 9. CD 2/14, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

H. L. Stavn Co., Hibbing, Minn. LB **$588,000.** general contract GRADE SCHOOL, HIBBING, MINN. Bd. Educ., E. G. Hoskins, clk., Hibbing, Minn. Bids Mar. 1. CD 2/25.

▲ **Henkel Constr. Co.**, Mason City, Ia., CA, **$1,500,000** HOSPITAL addn., MASON CITY, IA. Sisters of Mercy, Mason City, Ia. Treves, Daigle & Assocs., 601 Insurance Exch. Bldg., Sioux City, Ia., archts.-engrs.

Frank E. Blaser Building Co., 519 S. Seneca St., Wichita, Kan. LB **$502,355.** general contract State Tuberculosis HOSPITAL, CHANUTE, KAN. State, Dpt. Admin., State House, Topeka, Kan. Bids Feb. 23. CD 2/15.

▲ **Jack Pate**, 1600 W. 71 St. S., Wichita, Kan. Owner Builds. **$5,000,000.** HOUSING DEVELOPMENT, HAYSVILLE, KAN. H. R. Hunter, 1923 E. Central St., Wichita, Kan., engr.

▲ **Louis H. Moses**, 728 Delaware St., Kansas City, Mo. Owner Builds. Est. **$6,000,000.** SHOPPING CENTER, 95 and U. S. 69 Hy. at Village of Overland Park, KANSAS CITY, KAN. McCune, McCune & McCune, 1908 Utica Square, Tulsa, Okla., engrs. and archts.

▲ **Vest & Starkey, Builders**, 9714 Bassoon St., Houston, Tex., CA **$360,000**, 12 DWELLINGS; CA **$365,000**, 36 DWELLINGS; CA **$540,000**, 18 DWELLINGS, HOUSTON, TEX. Grand total $1,365,000. Vest & Starkey, 9714 Bassoon St., Houston, Tex. CD 2/7.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Calif., Los Angeles**—BA 4/1—Los Angeles Flood Control Dist., 2250 Alcazar St., Proj. 62, North Main St. and Mission Rd. Relief Storm Drain, lines A & B and portion of line C. $1,000,000. H. E. Heger, c/o owner, engr. CD 11/7/52.

▲ **California**—BA 4/21—Oakdale Irrigation Dist. and South San Joaquin Irrigation Dist., 322 D St., Oakdale, Donnells and Beardsley Dam, Stanislaus River, Sierra Nevada. Total $40,000,000. International Eng. Co., 74 New Montgomery St., San Francisco, engr. Geo. E. Goodall, 801 9 St., Sacramento, consult. engr. on Donnells Dam, B. W. Goodnough, c/o owner, consult. engr. CD 7/20/53, under LB.

BIDS ASKED—BUILDINGS

Calif., San Diego—SCHOOL—BA 3/29—San Diego Unified School Dist., 4100 Normal St., 32,458 sq. ft. stucco, masonry Kate Sessions School, Pacific Beach, $500,000. Robert A. Bradt, Land Title Bldg., archt. CD 5/1/53.

▲† **Calif., San Diego**—BARRACKS—BA 3/31—Dpt. Navy, San Diego, corpmen's barracks Naval Hospital, NOY 85188, Spec. 44763, $1,000,000. Plans deposit $70. CD 10/22.

HEAVY CONSTRUCTION

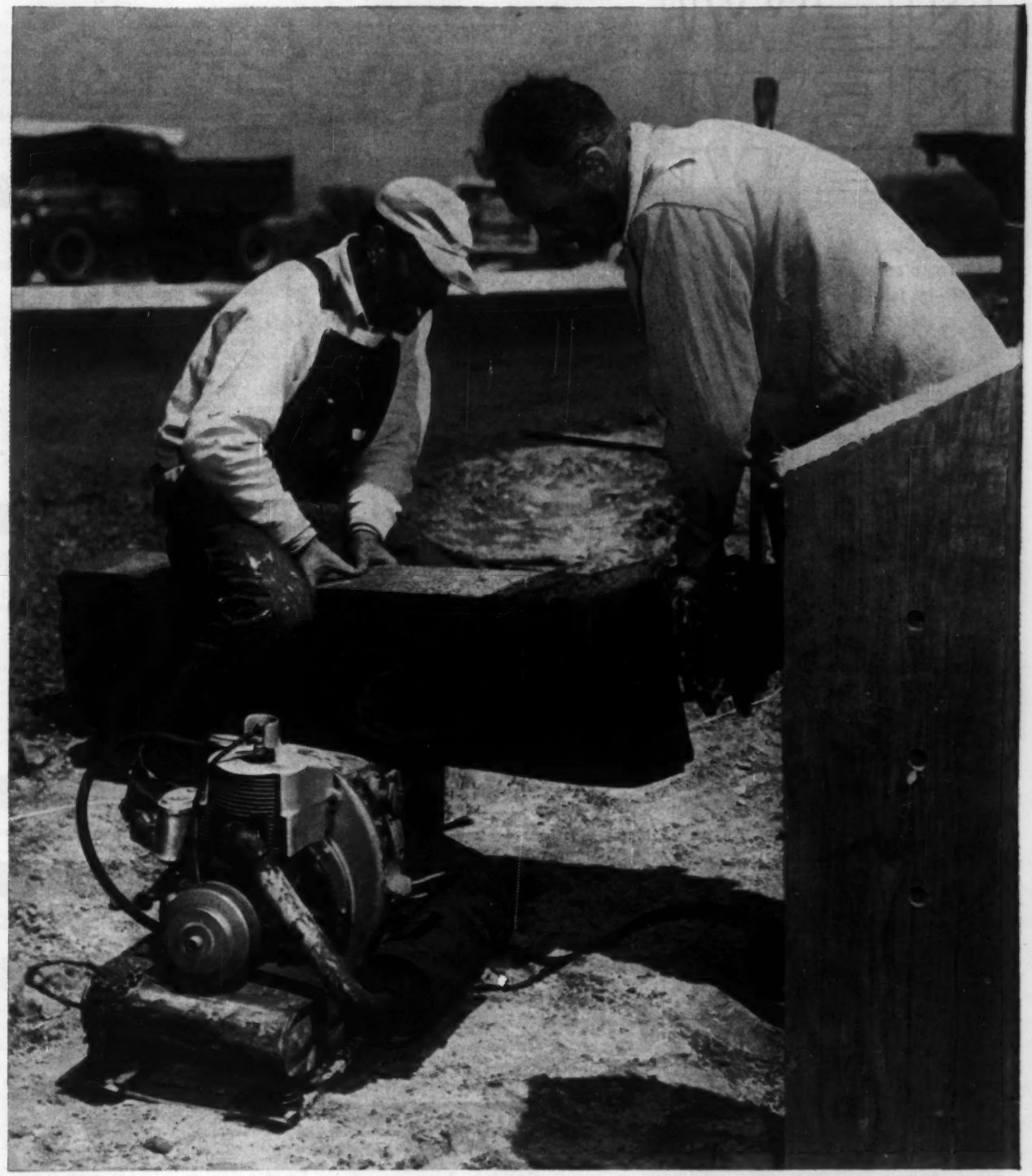
LOW BIDS AND CONTRACTS

† **Ashton Bldg. Corp.**, 2025 E. 22 St., Tucson, Ariz., CA, **$894,218**, storage facilities for ordnanuce storage area, Davis-Monthan Air Force Base, ENG-04-353-55-94, TUCSON, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Feb. 23. CD 3/2.

▲ **WASHINGTON**—State Hy. Comn., Olympia, **Fiorito Bros.**, 1100 Leary Way, Seattle, Wash., LB, **$960,691**, grading, surf., c. conc., b. conc. and rein.-con. T-beam bridge 6.345 mi. Primary State Hy. 1, Woodland to Chicken Coop Inn, F.A.P. BFI-001-1 (28) Unit 2, Cowlitz Co.;

Natt McDougall Co., Pittock Block, Portland, Ore., LB **$80,597**, rein.-con. T-beam overcrossing of Fisher Rd. on Primary State Hy. 8 with clearing, drainage,

(Continued on page 78)



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(Continued from page 76)

grading, surf. b. conc. paving 0.239 mi. F.A.P. F-014-1 (2), Clark Co. Bids Mar. 1. CD 2/11.

▲† **Cherf Brothers Inc. & Sandkay Contractors, Inc.,** Ephrata, Wash., CA **$1,297,368,** est. $1,282,522 Sch. 1, earthwork, pipe lines, concrete lining, structures for Pothales East Canal laterals, subiaterials, wasteways, Block 19, Columbia Basin Proj., Spec. DC 4310, WASHINGTON Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Feb. 3, awarded Feb. 25. CD 2/10, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

J. A. Thompson & J. A. Thompson & Son and J. A. Thompson & Son, Inc., Box 518, Inglewood, Calif., LB **$1,328,738,** grading, paving undercrossing, etc. 1.2 mi. between Waterford St. and Casiano Rd., Los Angeles Co. Bids Feb. 17. CD 1/28.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Guy F. Atkinson Co., P. O. Box 1259, Long Beach, Calif., CA **$1,620,049,** grading, surf., 2 steel and 2 box girder bridges 2.4 mi. between Euclid Ave. and east of College Ave., San Diego Co. Bids Jan. 27, awarded Feb. 15. CD 2/2.

▲ **John A. Artukovich Son's, Inc., & Artukovich Bros. Investment Co.,** 16200 S. Atlantic Blvd., Paramount, Calif., LB **$2,916,231,** 79 in. welded steel pipe line, South Gate, LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern California, 306 W. 3 St., Los Angeles, Calif. Bids March 3. CD 2/18.

† **Robert E. McKee, Inc.,** 4700 San Fernando Rd., Los Angeles, Calif., CA **$862,399,** storage facilities for ordnance storage, ENG-04-353-55-95, MARCH AIR FORCE BASE, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Feb. 23. CD 3/2, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John E. Branagh & Son,** 42 La Salle Ave., Piedmont, Calif., CA **$1,770,621,** OUTPATIENT BLDG., at Highland Hospital, OAKLAND, CALIF. Alameda Co., Court House, Oakland, Calif. Bids Feb. 15, awarded Feb. 21. CD 2/28, under LB.

J. W. Bailey Constr. Co., 630 Santa Barbara St. Santa Barbara, Calif., CA **$720,853,** CITY-COUNTY BLDG., JAIL, POLICE STATION, OFFICE BLDG., OXNARD, CALIF. Ventura Co. and City of Oxnard, City Hall, Oxnard, Calif. Bids Jan. 25. CD 2/8, under LB.

▲ **Santa Ana School Dist.,** 1415 French St., Santa Ana, Calif., rejected bids Feb. 15, JUNIOR HIGH SCHOOL SANTA ANA, CALIF., LB **$1,378,980.** CD 2/21, under LB.

CANADA

BIDS ASKED—BUILDINGS

▲ **B. C., Vancouver**—SCHOOL—BA 3/31—Vancouver School Bd., 1595 W. 10 Ave. (first unit), 3 story, rein.-con. Sir Winston Churchill High School. $1,000,000. E. D. King, c/o owner, school bd. archt. CD 12/18/53.

ALASKA

LOW BIDS AND CONTRACTS

† **Wiggins Constr. Co.,** Anchorage, Alaska, LB **$734,540,** est. $790,072, rehabilitate 98-mi. open-wire line from Skagway to McCrea, Inv. 55-12, ALASKA. Alaska Communications System, 4735 E. Marginal Way, Seattle 4, Wash. Bids Feb. 28. CD 1/31.

Proposed Projects

WATER SUPPLY

▲ **Mich., Detroit** — Bd. Supervs. Wayne Co., 3800 Cadillac Tower, Detroit, water intake and filteration plant, Rockwood, $50,000,000. Bond election Apr. 4. partial financing. CD 11/14/51.

SEWERS, WASTE DISPOSAL

▲ **Ga., Decatur**—Bd. Comrs. De Kalb Co. County Court House, expansion county's sewerage system, **$1,000,000.**

▲ **Ill., Chicago**—City, City Hall, 16,000 ft. Wrightwood auxiliary storm sewer Wrightwood ave. at Kedzie to Hamlin to Crawford Aves. **$2,500,000.** CD 2/8/51.

▲ **Mich., Grand Haven**—City, city wide storm sewer, $1,000,000-$1,250,000.

▲ **Wash., Spokane**—City, City Hall, sewage treatment plant. $1,500,000. Greeley & Hansen, 220 S. State St., Chicago, Ill., consult. engrs.

▲ **W. Va., Parkersburg**—City, City Bldg., sewage disposal plant, interceptor and sanitary sewers. **$4,300,000.** CD 10/17/46.

BRIDGES

▲ **Mich., Corunna** — Bd. Rd. Comrs. Shiawassee Co., bridges. **$1,225,000.** E. D. Devereaux, Corunna, co. engr. CD 10/25/44.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, Belleville—hy. bridge construction in Belleville area on various highways and across Trent River, $3,610,000.

Smooth Rock Falls—bridge over Mattagami River on Trans-Canada Hy., suspension bridge 800 ft. long, **$1,500,000.**

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., subway on Bloor St. W. in Islington suburb under railway crossing, $500,000; overpass at Eglinton Ave. E. and Kennedy Rd. to eliminate railway crossing, $650,000; overpass at Eglinton Ave. E. and Bellamy Rd. to eliminate railway level crossing, $650,000; overpass and interchange at Dundas St. W. and Royal York to eliminate railway level crossing, $3,000,000. CD 1/23/53.

STREETS AND ROADS

▲ **Mich., Corunna**—Bd. Rd. Comrs. Shiawassee Co., road imprvs. **$7,759,000.** E. D. Devereaux, Corunna, co. engr.

▲ **NEW YORK**—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,

Suffolk Co.—Suffolk Cross-Island Expressway, to connect Babylon and Northport, four-lane highway would start at Montauk Highway, Babylon, and run north to Southern State Parkway at Deer Park Ave., along Deer Park Ave. to Northern State Parkway and continue to intersection of Elwood Ave. and Route 25A at Northport Village Line. **$20,000,000.**

▲ **Tex., Lubbock**—City, City Hall, Freeway, four-lane divided street with paralleling service streets, grading, drainage, caliche base, quad. asph. surf., concrete curbs and gutters. **$2,500,000.** Parkhill, Smith & Cooper, Gibson Bldg., 1414 Avenue J, consult. engrs.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, **Belleville**—27 mi. four-lane hy. in Belleville Area. **$12,000,000.** CD 4/27/44.

EARTHWORK, WATERWAYS

▲ **Calif., San Leandro**—San Leandro Flood Control Dist., Zone 9, San Leandro, defeated **$1,479,000** bonds flood control system. CD 12/8.

▲† **Maryland**—U. S. Eng., First and Douglas Sts. N.W. Wash. D. C., flood wall and levee constr. Potomac River, flood protection, Cumberland, Allegany Co. **$1,000,000.**

▲ **Mich., Detroit**—Bd. Supervs. Wayne Co., 3800 Cadillac Tower, bond election Apr. 4, Rouge River Valley Drainage and Flood Control Proj. $5,000,000, Leroy Smith, co. engr.

▲ **Wisconsin**—Northern States Power Co., 2 S. Barstow St., Eau Claire, rebuilding 375 ft. concrete gravity-type dam, five 40x19 ft. tainter gates, 300 ft. earth dike, power house, also constr. sub-station, Menomonie, **$2,922,650** Henningson, Durham & Richardson, engrs. 2962 Harney St., Omaha, Neb. Making survey. CD 7/22.

AIRPORTS

▲ **N. C., Asheville**—AIRPORT—Bd. Comrs., Buncombe Co. Court House, airport, **$1,650,000.**

LATIN AMERICA

▲ **Mexico, Ensenada**—Oscar Senson, c/o David Ojeda, mayor, Ensenada, plans iron and steel works. **$1,000,000.**

PUBLIC BUILDINGS

▲ **Calif., Porterville**—SCHOOL—Porterville Union High School Dist., Porterville, defeated **$1,800,000** bonds, school addns. CD 12/15.

▲ **Calif., Yreka**—SCHOOLS—Siskiyou Joint Union High School Dist., Yreka, **$2,407,000** bond election Apr. 19, schools.

▲† **D. C., Wash.**—CORRECTION CENTER—District of Columbia, 499 Pa. Ave. N.W., plans by Mills, Petticord & Mills, 3308 14 St. N.W., youth correction center at Lorton, Va. **$3,500,000.** CD 9/16/43.

▲ **Fla., Gainsville**—HOSPITAL—Bd. Comrs., Alachua Co., Court House, plans by Sanford Goin, 518 N.E. 4 Ave., Alachua General Hospital, **$2,530,000.**

▲ **Ga., Decatur** — SCHOOLS — DeKalb Co. Bd. Comrs., County Court House, schools. **$5,000,000.** CD 9/22/52.

▲ **Ill., Chicago**—MENTAL RESEARCH HOSPITAL—State Dpt. Welfare, Springfield, plans by Shaw, Metz & Dolio, 208 S. La Salle St., Zone 4, and Fugard, Burt, Wilkinson & Orth, 520 N. Michigan Ave., Zone 11, mental research hospital, Ashland Ave., Taylor St., Roosevelt Rd. and Paulina St. **$5,000,000.** CD 2/10/54.

▲ **Ind., Marion**—HOSPITAL—Marion General Hospital, Marion, plans by McGuire & Shook, 1400-01 American Fletcher Bank Bldg., Indianapolis, Zone 4, hospital, **$1,300,000.**

▲ **Kan., Wichita**—SCHOOL—Bd. Educ., 428 S. Broadway, plans by Hibbs, Robinson & Pettit, 519 S. Broadway, Truesdale Intermediate School, **$1,300,000.** CD 11/10.

▲ **Mich., Ann Arbor**—MEDICAL SCIENCE—Regents of University of Michigan, Ann Arbor, plans by Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Mich., and Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Ill., medical science bldg. CD 10/31/52.

▲ **Mich., Eloise**—HOSPITAL—Bd. Supervs. Wayne Co., 3800 Cadillac Tower, Detroit, bond election Apr. 4,

general hospital. $10,000,000. Bonds 11/2 defeated. CD 8/13.

▲ Mo., St. Joseph—SCHOOL—Bd. Educ., St. Joseph, coted $1,250,000 bonds Feb. 8, school imprvs.. CD 11/13/51.

▲ N. Y., Bayside—SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City. Proj. E-908, P.S. 203, vicinity Bell Blvd. and 56 Ave. $2,000,000.

▲ N. Y., Brooklyn—HIGH SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-915, Junior High School 265, vicinity St. Edward St. and N. Elliott Pl. $3,850,000.

▲ N. Y., Brooklyn — SCHOOL — Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-761, P. S. 286, vicinity Nostrand Ave. and Avenue V. $2,300,000.

▲ N. Y., Brooklyn—HIGH SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-901, New High School, $6,800,000.

▲ N. Y., Douglaston — SCHOOL — Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-930. P. S. 221 in area bounded by Alley Pond Park, Grand Central Parkway, City Line and Horace Harding Expressway. $2,000,000.

▲ N. Y., Edgemere—HOUSES—New York City Housing Auth., 299 Broadway, New York, Zone 7, Edgemere Houses for 1,500 families, site bounded by Beach 51 St., Almeda Ave., Beach 59 St. and Beach Channel Dr. $19,000,000.

▲ N. Y., Lackawanna—HIGH SCHOOL—Lackawanna School Bd., High School Bldg., high school, Ridge Rd. and Orchard Pl. $2,000,000-$3,000,000.

▲ N. Y., New York — SCHOOL — Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-866, P. S. 105, vicinity 100 St. and Amsterdam Ave. $2,000,000.

▲ N. Y., New York — SCHOOL — Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-322, moedrnization and addn. to P. S. 169, W. 169 St. and Audubon Ave. $1,500,000.

▲ N. Y., New York — SCHOOL — Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-804, P. S. 162, vicinity Dyckman St. and Vermilyea Ave. $2,000,000.

▲ N. Y., New York — SCHOOL — Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-906, P. S. 176 (replacing P. S. 14) vicinity 27 St. and 3 Ave. $2,500,000.

▲ N. Y., New York — SCHOOL — Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-862, P. S. 55, vicinity Houston and Sullivan Sts. $3,000,000.

▲ N. Y., New York — SCHOOL — Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, Proj. E-295, School of Industrial Art. $7,500,000. CD 1/13/44.

▲ N. Y., New York—HOUSES—New York City Housing Auth., 299 Broadway, Zone 7, North Harlem Houses for 1,600 families, on site bounded by 7th Ave., W. 145 St. and 8th Ave. $24,000,000. CD 6/17.

▲ N. Y., New York—POLICE ACADEMY—Dpt. P. Wks., Municipal Bldg., Zone 7, Police Academy in block bounded by Lexington Ave., Third Ave., E. 22 and E. 23 Sts., Proj. PO-77. $10,000,000.

▲ N. Y., Whitestone—HIGH SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Proj. E-926, Junior High School 194, 17th Rd. and 154 St. $3,500,000.

▲ O., Cincinnati—SCHOOLS—Bd. Educ., 600 E. McMillan St.

Eden Junior High School, $1,600,000. A. M. Kinney, 2905 Vernon Pl., Cincinnati, archt.

Fairview Elementary School, $400,000. Edward J. Schulte, 920 E. McMillan St., archt.

Glenmore-Werk Elementary School, $740,000. Pepinsky, Grau & Schrand, Union Trust Bldg., archts.

Inter-Fairmount-Fairfield School, $700,000. Garriott & Becker, 800 Broadway, archts.

Mount Washington Elementary-Junior High School, $1,500,000. Felsberg & Gillespie, Ingalls Bldg., archts.

Northeast Bond Hill Elementary School, $700,000. Woodie Garber & Assoc., Wm. Howard Taft Rd., archts.

South Avondale School, $800,000. Potter, Tyler, Martin & Roth, 128 E. 6th St., archts.

Taft Elementary School, $350,000. Sullivan, Isaacs & Sullivan, 1800 Reading Rd., archts.

Uptown Elementary School, $1,000,000. Kruckemeyer & Strong, Carew Tower, archts.

Whittier School, $1,000,000. James E. Allan, 914 Main St., archt.

Woodward High School addn., $1,000,000. E. G. Cellarius, Gas & Electric Bldg., archt. CD 2/18.

▲ O., Cincinnati—POLICE—City, City Hall, police bldg., Lincoln Park Dr. and Central Ave. $1,500,000. T. J. Montgomery, city engr.

▲ O., Cincinnati—BUILDING—City, City Hall, building at Chester Park to house commercial administrative and distribution functions of WW department. $2,400,000. T. J. Montgomery, city engr.

▲ Tex., Beaumont—WAREHOUSING, etc.—Port of Beaumont, James Hartzog, dir., 1255 Main St., bond election Apr. 5, warehousing, $1,000,000; turning basin expansion, $750,000; port rehabilitation work, $750,000. CD 2/17.

▲ Tex., Galveston—AUDITORIUM—City, City Hall, plans by George L. Dahl, 2101 N. St. Paul St., Dallas, auditorium. $2,500,000.

▲ Tex., Temple—SCHOOLS—Temple Independent School Dist., Temple, voted bonds Jan. 18, elementary classrooms-cafeteria, $300,000; Southside Junior High School, $450,000; high school, $1,000,000. CD 1/5.

▲ Va., Arlington—HIGH SCHOOL—Arlington County School Bd., 1426 N. Quincy St., plans by Rhees E.

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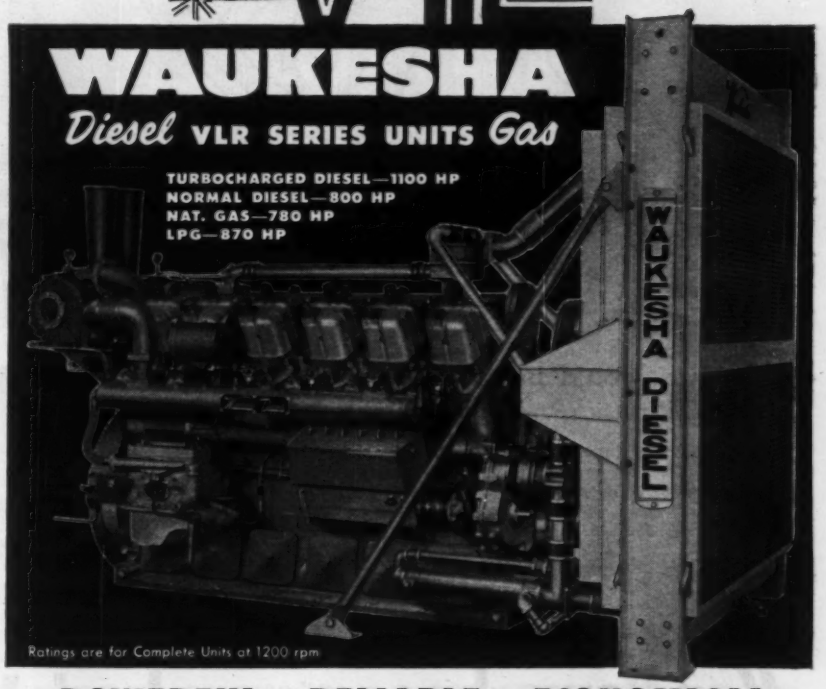

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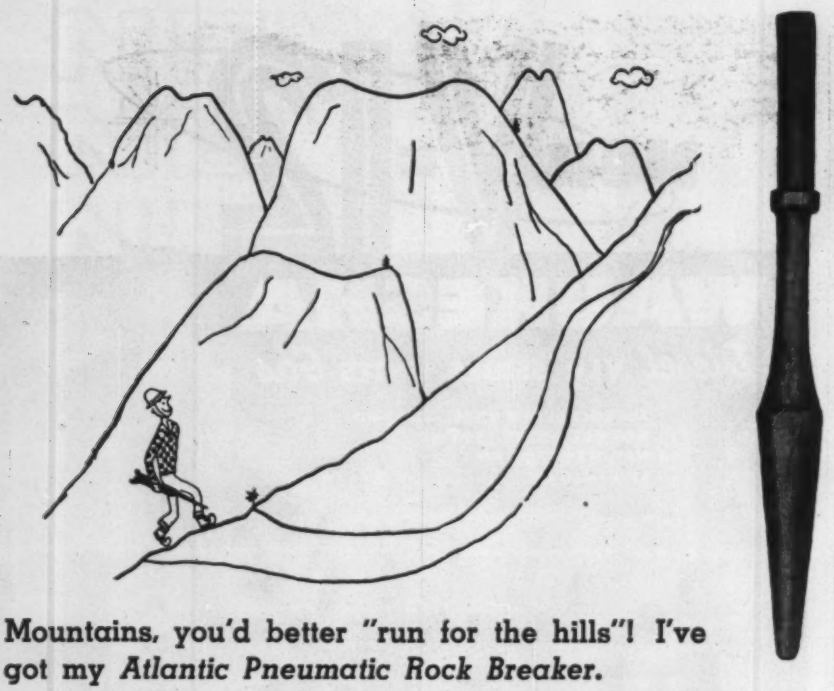

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Burket, 1223 Connecticut Ave., Wash. D. C., Junior High School. $2,000,000.

▲ **Que., Montreal**—SCHOOL—Montreal Protestant Bd. of School Comrs., 3460 McTavish St., plans by Durnford, Bolton & Chadwick, 901 Victoria Sq., Northmount High School, Lavoie, Legare and MacKenzie Aves. $2,000,000. T. G. Anglin, Dominion Square bldg., consult. engr.

COMMERCIAL BUILDINGS

▲ **Calif., Anaheim**—DWELLINGS—Centex Constr. Co., Inc., 536 W. Commonwealth St., Fullerton, plans by Davis & Quigley, 43 Malaga Cone Plaza, Palos Verdes, 349 frame, stucco dwellings, $3,500,000.

▲ **D. C., Wash.,** — HEADQUARTERS — International Union of Operating Engineers, 1003 K St. N. W., plans by Halabird Root & Burgee, 180 N. Wabash St., Chicago, Ill., 6 or 7 story headquarters bldg., 17 and DeSales St. N. W., Over $1,000,000.

▲ **Fla., St. Petersburg**—SHOPPING CENTER—Milton and Leonard Pepper, Brock Bldg., Tallahassee, owners of Tyrone Gardens Shopping Center, Inc., St. Petersburg, shopping center addn. at Tyrone Blvd. and 9 Ave. North. $2,000,000.

▲ **Ga., Albany**—HOSPITAL—Phoebe Putney Memorial Hospital, Albany, plans by Charles McCauley, Jackson Bldg., Birmingham, Ala., hospital addn. $1,800,000. CD 5/19/53.

▲ **Ga., Atlanta**—MEDICAL—Owner, c/o Harkness T. Kenimer, realty agt., 522 Peachtree St. N. W., plans by John Portman, Grand Theatre Bldg., 7 story Peachtree Medical Bldg., 330 Peachtree St., $1,000,000.

▲ **Ill., Calumet City**—HOTEL, etc.—Owner c/o John Bartolomeo, archt. 10836 S. Western Ave., Chicago, hotel, motel, cabanas, and pool $1,000,000.

▲ **Ill., Springfield**—HOSPITAL—Memorial Hospital of Springfield, Inc., 1 and Miller Sts., plans by Burnham & Hammond, 53 W. Jackson St., Chicago, hospital expansion program, incl. nurses home, $2,000,000.

▲ **Mass., Boston**—REHABILITATION CENTER—Boston Dispensary, Edward B. Havity, pres., 25 Bennett St., plans by James H. Ritchie & Assoc., 135 Clarendon St., rehabilitation center, incl. 6 story bldg., therapeutic pool, Harrison Ave. and Bennett St. $1,000,000.

▲ **Mass., Lexington**—APARTMENT—Owner, c/o Arthur G. Manaselian, archt., 30 Huntington Ave., Boston, forty 2 story masonry apartments, Waltham St., $1,500,000.

▲ **Mich., Brighton**—HOMES—Robert Herndon Realty Co., 600 Griswold Bldg., Detroit, Rush Lake Estates 600 acre development incl. homes and lake front park, also 1,250 lake front on Pleasant Lake, Pleasant Lake Estates, $1,000,000.

▲ **Minn., Golden Valley (Minneapolis P. O.)**—OFFICE—General Mills, Inc., 400 Second Ave. S., Minneapolis, plans by Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill. (preliminary planning), general office on 40 acre tract at Wayzata Blvd. and County Road 18, $2,000,000.

▲ **Mo., St. Louis**—LIBRARY, etc.—Washington University, Ethan H. Shepley, chancellor, Skinker and Forsyth Blvds., Zone 4, library, $3,500,000; community center, $3,000,000; dormitory for medical students adjacent to Kingshighway and Audubon Ave., $2,225,000; university union bldg., $2,000,000, 3 other dormitories on campus, $1,000,000 each. CD 5/2/49.

▲ **Mont., Helena**—RESIDENCE HALL, etc.—Carroll College, Helena, residence hall and science-library-auditorium bldg. $1,000,000.

▲ **Neb., Lincoln**—SCHOOL—St. Pius X Parish, c/o Rev. Jerome Murray, 514 S. 18 St., school, 60th and A Sts. $1,000,000.

▲ **N. Y., West Seneca**—STORES—Carl J. Lambein, 839 Union Rd., plans by Joseph J. Geigand, 234 Orange St., Buffalo, addn. of approx. ten 1 story brick stores to West Seneca Plaza (renamed Southgate Plaza) Seneca St. and Union Rd. $1,250,000.

▲ **N. C., Hickory**—GYMNASIUM, etc.—Rhyne College, Hickory, gymnasium, college union bldg., science bldg., auditorium, women's dormitory, music bldg., addnl. dining space. $1,500,000.

▲ **O., Hudson** — DWELLINGS — K-D Builders, 6089 State Rd., Parma, 650 ranch and split level homes, Rte. 303 and Boston Mills Rd. $15,000,000.

▲ **O., Parma**—DWELLINGS—K-D Builders, 6089 State Rd., 128 ranch type homes, York and Pleasant Valley Rds., $2,500,000.

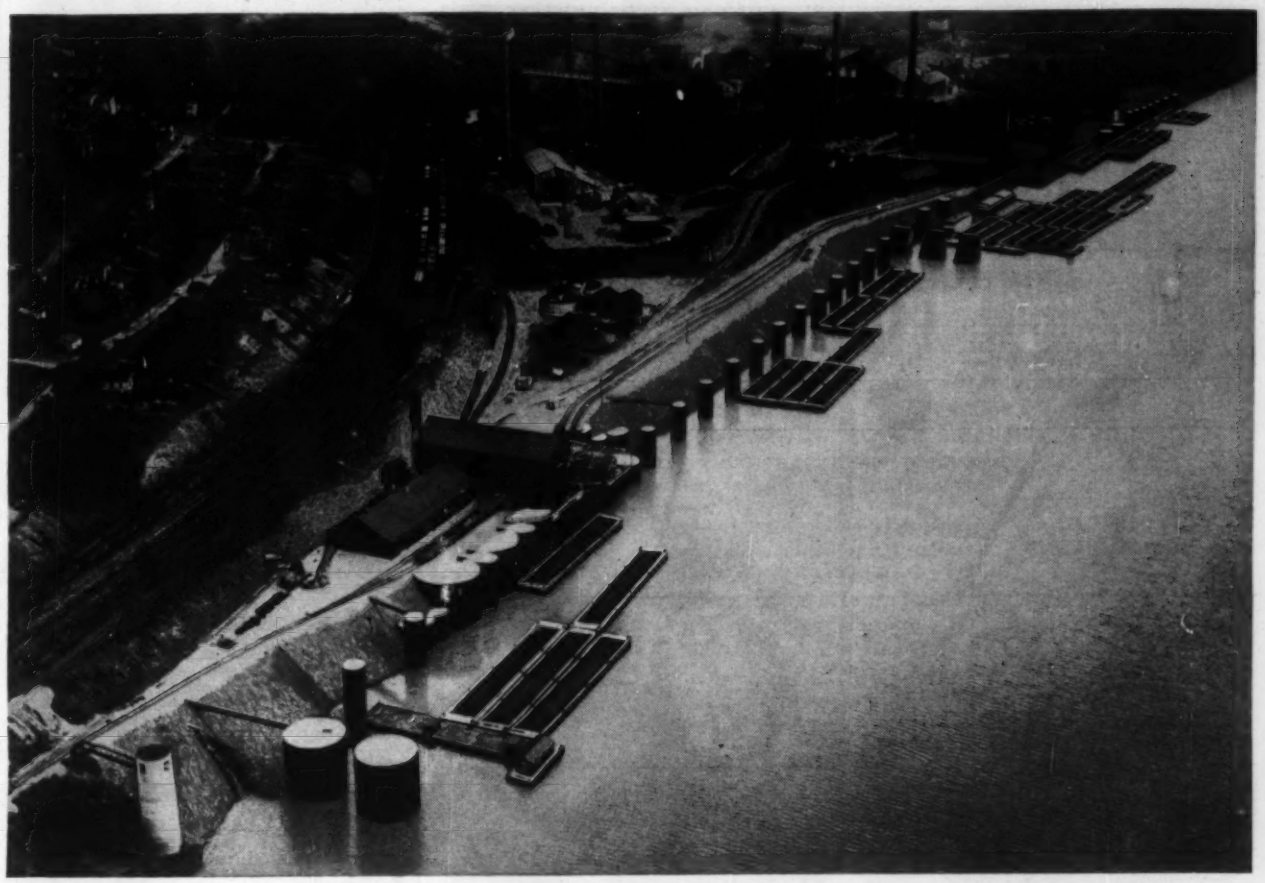
▲ **Tex., Dallas**—HOSPITAL—Baylor University Hospital, 3500 Gaston St., plans by Thomas, Jameson & Merrill, 820 N. Harwood St., hospital expansion, $1,000,000. CD 12/30.

▲ **Tex., Houston**—APARTMENT-HOTEL—Melvin Silverman, 2923 Shenandoah St., plans by Lloyd & Morgan, 4605 Montrose St., 13 story, 192,000 sq. ft. apartment-hotel, underground parking; 25x60 ft. swimming pool, brick exterior, concrete-steel frame constr. $3,000,000. I. A. Naman, 3305 Montrose St., and Walter P. Moore, 2 Pinedale St., consult. engrs. CD 8/5/53.

▲ **Tex., Pasadena** — SHOPPING CENTERS — John A. Campbell Interests, 111 W. Southmore St., Houston, plans by Charles Chase, 1200 Bissonet St., Houston, Unit 1, brick, cut stone, concrete frame shopping center, $350,000; Unit 2, shopping center, $1,000,000; Unit 3, shopping center, $500,000, between Winkler and Houston Rds. in "Pasadena Oaks" area.

▲ **Va., Norfolk**—HOSPITAL—DePaul Hospital, Granby and Kingsley Lane, plans by J. Gerald Phelan, 211

(Continued on page 82)



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Economy-minded business management is using river transportation to move increasingly larger tonnages of raw materials and finished goods. To realize the full potential savings, adequate docking and harbor facilities must be available to transfer cargoes with minimum delay.

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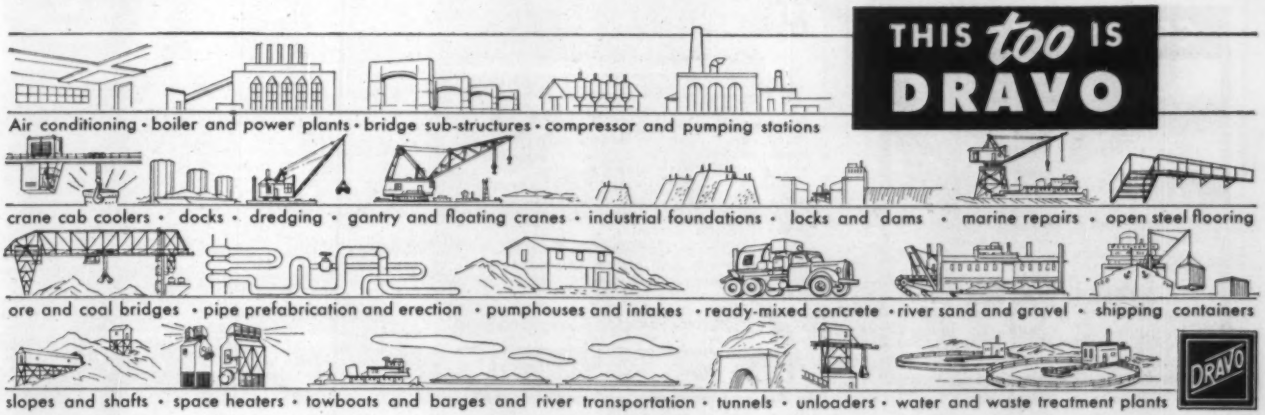
A solution resulting from the study was accepted and Dravo constructed 1800 feet of new harbor including 26 steel sheet pile cells. This cellular type of dock, pioneered by Dravo more than twenty years ago, is reasonable in cost, adaptable to expansion and requires little maintenance.

This is just one of many ways Dravo has been serving business and industry for more than 60 years. Dravo considers customer satisfaction an essential factor in all its products and services. DRAVO CORPORATION, PITTSBURGH 25, PENNA.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McKiernan-Terry Corporation

Manufacturing Engineers

13 Park Row New York 7, N. Y.

(Continued from page 80)

State St., Bridgeport, Conn., and T. David FitzGibbon, Royster Bldg., Norfolk, 3 story wing to present hospital. $1,000,000. W. J. Lynch, 2645 E. 75 St., Chicago, Ill., consult. engr. CD 12/18/53.

▲ **Wash., Spokane**—HOUSES, etc.—Western Builders Co., W. 2208 Wellesley St., 200 houses $2,500,000; shopping center, $350,000.

▲ **Wis., Milwaukee**—HOSPITAL—Froedert Enterprises, Inc., 735 N. Water St., hospital, $3,000,000.

▲ **Wis., Wauwatosa** — SHOPPING CENTER—Froedert Enterprises, Inc., 735 N. Water St., Milwaukee, plans by Grassold-Johnson & Assocs., 734 N. Jefferson St., Milwaukee, Zone 2, "Mayfair" Shopping Center, incl. 60 to 80 stores, 4 or 5 story office bldg. $18,000,000. Perkins & Will, 309 W. Jackson St., Chicago, Ill. and W. Becket & Assocs., 5657 Wilshire Blvd., Los Angeles, Calif., consult. engrs.

▲ **Alta., Calgary**—DEPARTMENT STORE EXPANSION—T. Eaton Co. of Canada Ltd., 190 Yonge St., Toronto, Ont., department store expansion, 8 Ave. and 4 St. W. $2,000,000. W. Rogerson, c/o owner, Winnipeg, Man., engr.

▲ **Alta., Calgary**—STORE—Hudson's Bay Co., Portage and Memorial Ave., Winnipeg, Man., plans by Smith, Hinchman & Grylls Inc., 800 Marquette St. Bldg., Detroit, Mich., U. S. A., 6 story, bsmnt. store extension. $2,500,000.

▲ **Ont., Toronto**—APARTMENT—C. A. Pitts, 30 Commercial Rd. and W. H. Ramsay, 25 King St. W., plans by Gordon S. Adamson & Assocs., 52 St. Clair Ave. E., 90-95 luxury apartments, basement parking for 100-car co-op tenant-owner apartment, 500 Avenue Rd. $1,500,000.

▲ **Ont., Toronto**—OFFICE—Traders Finance Corp., 50 King St. W., plans by Marani & Morris, 1250 Bay St., 7 story, 100,000 sq. ft. office, Hayden and Charles Sts., $3,000,000.

▲ **Que., Montreal**—APARTMENT—Westhill Constr. Ltd., 5950 Cote des Neiges Rd., plans by Charles Grenier, 170 Geneva Crescent, Mount Royal, Montreal, seventeen bldgs., 3 story, no basmnt., wood frame, brick apartment bldg. project, Salaberry Ave. and Grenet St. $1,500,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Paramount**—PLANT—American Brass Co., John A. Cole, Jr., pres., Ambric Bldg., Waterbury 20, Conn. plant, $13,000,000.

▲ **Calif., Riverside**—PLANT—California Electric Co., 3771 W. 8 St., 4th unit for steam electric generating plant at Highgrove, $3,764,000; new power plant, sub-stations, expansion and modernization, $5,736,000; new headquarters bldg. $2,000,000.

▲ **Ind., Kokomo**—PLANT—Chrysler Corp., 1103 S. Home Ave., 800,000 sq. ft. plant, plus power plant and large 2 story office bldg., southeast edge of city, at junction of US 31 and Nickle Plate R.R. on 155 acre tract, $25,000,000 or more.

▲ **N. C., Charlotte**—LABORATORY—Celanese Corp. of America, Fairview Dr., laboratory $8,000,000.

▲ **O., Sandusky** — PLANT — Ford Motor Co., 3000 Schaefer St., Dearborn, Mich, 600,000 sq. ft. plant in Margaretta Twp., ½ mi. south of here. $7,500,000.

▲ **Wash., Port Gamble**—LUMBER MILL, etc.—Pope & Talbot, Walker Bldg., Seattle, Zone 1, lumber mill, veneer plant and plywood mill. $2,500,000.

▲ **Alta., Calgary**—PARKING GARAGE—Hudsons' Bay Co., Portage and Memorial Ave., Winnipeg, Man. plans by Smith, Hinchman & Grylls, Inc., 300 Marquette Bldg., Detroit, Mich., U. S. A., 5 story, rein.-con. parking garage, enclosed bridge connecting 4-floor present bldg. $1,500,000.

▲ **Man., Winnipeg** — PLANT — Canadian Hydrocarbons Ltd., Winnipeg & Central Gas Co., 265 Notre Dame Ave., chemical plant. $20,000,000.

▲ **Que., Cap de la Madeleine**—PLANT—Fort Motor Co. of Canada Ltd., 175 Bloor St. E., Toronto, Ont., project abandoned, assembly plant, $2,000,000. CD 2/23.

UNCLASSIFIED

▲ **Arizona and California**—PETROLEUM PRODUCTS LINE—Southern Pacific Pipe Lines, Inc., c/o Southern Pacific Ry. Co., 913 Franklin St., Houston, Tex. 365 mi. petroleum products line between Los Angeles Calif and Phoenix and Tucson, Ariz. to incl. stations and terminal facilities, $13,000,000.

▲ **Texas**—GAS LINES—Colorado Interstate Gas Co., Box 1087, Colorado Springs, Colo., laying gas-gathering lines in panhandle areas of West Texas, Amarillo area. $1,000,000. CD 8/9/51.

▲† **Wash., Tacoma**—PIER CONSTRUCTION, etc.—P. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, reconstr. Pier 4 and part of Pier 3 at Naval Station, $3,000,000.

▲† **Alaska, Seward**—SHIPPING TERMINAL—The Alaska R. R. Dpt. Interior, Anchorage, shipping terminal with two 500 ft. gravel-filled piers, concrete, steel warehouse, etc., $4,000,000. Earl & Wright, 233 Sansome St., San Francisco, Calif. consult engrs. I. P. Cook, c/o owner, ch. engr. CD 2/9.

▲ **British Columbia and Alberta**—GAS PIPE LINE—Westcoast Transmission Co., c/o Canadian Bechtel Ltd., engrs., 540 Burrard St., Vancouver, B. C., will supervise engineering and construction, Peace River Gas Pipe Line, 650 mi. 30-in. main gas pipe line from Frazer Valley to gas fields to northern British Columbia and Alberta. $120,000,000.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 22 Massachusetts Mar 28 Connecticut
STREETS AND ROADS
March 22 Massachusetts Mar 28 Connecticut

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
A. J. Orlando Constr. Co., 151-59 Powells Cove Blvd., Whitestone, N. Y. LB **$3,345,375.** Contr. No. 51-053 hy. and bridge, Brimfield and Warren. Bids Mar. 8. CD 2/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **M. S. Kelliher Co.**, 294 Washington St., Boston, Mass., LB **$3,608,000.** HIGH SCHOOL, Memorial Field off East Center St., MANCHESTER, CONN. Town Bd. Educ., Town Hall, Manchester, Conn. Bids Mar. 8. CD 1/26.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 31 New York
STREETS AND ROADS
March 31 New York

▲ New York—BA 3/24—The Power Authority of The State of New York, 270 Broadway, New York, Zone 7, constr. Long Sault Dam, near Massena, St. Lawrence Co., Spec. PA-5-11002, St. Lawrence Contr. No. 8. Plans deposit $50. Extended date. Uhl, Hall & Rich, 230 Congress St., Boston 10, Mass., engrs. CD 1/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW JERSEY-PENNSYLVANIA**—State Hy. Dpt., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton, N. J.,
George M. Brewster & Sons, Inc., 275 W. Fort Lee Rd., Bogota, N. J., CA **$3,226,415,** grading, paving bridge 0.791 mi. Route 42 (North-South Freeway) from Station 212 plus 0 to Route U. S. 130, Fed. Proj. U-193 (2), Camden Co., second stage of appr. each system to Gloucester-Phila. Bridge. Bids Feb. 24. CD 3/1, under LB.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,
Union Building & Constr. Co., 631 Main Ave., Passaic, N. J., LB **$2,733,377,** Contract W-5 widening Turnpike from Lincoln Tunnel interchange to George Washington Bridge Interchange in Ridgefield Park, Hudson and Bergen Counties. Bids Mar. 8. CD 2/9.

▲ **J. Rich Steers Co.**, 17 Battery Pl., New York 4, N. Y. CA, **$5,376,375,** constr. Pier A, Hoboken-Port Authority Piers, H.P. 120.006, HOBOKEN, N. J. The Port of New York Auth., 111 85th Ave., New York 11, N. Y. Bids Feb. 21. CD 2/24, under LB.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,
Badgett Mine Stripping Corp., White Haven, Pa., CA **$5,488,530.** constr. 3.58 mi. (Sec. 37-F) Northeastern Exten. in Bear Creek Twp.; 3.72 mi. (Sec. 37-G) in Bear Creek, Plains and Jenkins Twps., both in Luzerne Co. Bids Feb. 8. CD 2/10 under LB.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4 St. Harrisburg,
W. E. Graham & Son, Cleveland, N. C., LB **$1,760,358,** constr. 2.11 mi. (Sec. 37-H) Northeastern Exten. Jenkins and Pittston Twps., Luzerne Co. Bids Mar. 8. CD 2/21.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Joseph P. Blitz, Inc.**, 150 E. 39 St., New York 16, N. Y., LB **$2,566,000,** general constr. and fdns. for Albany HOUSES II (Proj. No. NYS-66) area bounded by Bergen St., Troy Ave., St. Marks Ave. and Albany Ave., BROOKLYN, N. Y. New York City Housing Auth., 299 Broadway, New York 9, N. Y. Bids Mar. 8. CD 2/17.

▲ **Babcock & Wilcox Co.**, 161 E. 42 St., New York, N. Y. CA Total est. **$30,000,000-$40,000,000.** atomic electric POWER PLANT at Indian Point, PEEKSKILL, N. Y. Consolidated Edison Co. of New York, 4 Irving Pl., New York, N. Y. CD 2/14.

▲ **Paul Tishman General Contractors, Inc.**, 21 E. 70 St., New York, N. Y., CA Est **$4,000,000.** 1,000-man DORMITORY-CLASSROOM BLDG., NEW BRUNSWICK, N. J. Rutgers University, New Brunswick, N. J. CD 4/30.

▲ **Fox Bros.**, Jenkingtown, Pa., Separate Contracts. **$2,500,000.** 12 story APARTMENT BLDG.-HOTEL, 600-car GARAGE, ABINGTON, PA. George S. Idell, 117 S. 17 St., Phila., Pa., archt.

▲ **Briarwood Corp.**, 141 Garrett Rd., Upper Darby, Pa. Separate Contracts. **$1,750,000.** RESIDENTIAL DEVELOPMENT. New Ardmore Ave., BROOMALL, PA.

▲ **S. Weintraub**, Market St. Natl. Bank, Juniper and Market Sts., Phila., Pa., Separate Contracts. **$4,000,000.** RESIDENTIAL DEVELOPMENT, Maxwell and Nashton Aves., PHILA., PA. Louis J. Cowan, 1505 Pine St., Phila., Pa., archt.

▲ **Mellon-Stuart Co.**, 210 E. Park Way, Pittsburgh, Pa., CA Est. **$5,000,000.** 8 story, stone, brick, steel frame, Graduate SCHOOL OF HEALTH, PITTSBURGH, PA. University of Pittsburgh, 5th and Bigelow Sts., Pittsburgh, Pa. Eggers & Higgins, 100 E. 42 St., New York, N. Y., archts. CD 7/1/48.

▲ **Griffith & Shedler**, 69 and Walnut Sts., Upper Darby, Pa., Separate Contracts, **$2,376,000,** 146 RESIDENCES, Darby Twp., Calcon Hook Rd., SHARON HILL, PA. George Hay, Lima, Pa., archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 25 Alabama, Kentucky, Tennessee
STREETS AND ROADS
March 23 Louisiana
March 25 Alabama, Kentucky, Tennessee

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Associated Contractors**, Birmingham, Ala. (composed of Dunn Constr. Co. 2508 3 Ave. N., Birmingham, Ala., Blount Bros. Constr. Co., Bell Bldg., Montgomery, Ala., Patterson-Emerson-Comstock Co. of Alabama, Brown-Marx Bldg., Birmingham, Ala and Girdler Co. 244 E. Broadway, Louisville, Ky.) CA **$37,600,000.** cost-plus-a-fixed-fee, ALABAMA ORDNANCE WORK, CHILDERSBURG, ALA. Dpt. Army, Ordnance Depot, Pentagon Bldg., Wash. D. C. CD 1/24, under LB.

MIDDLE WEST

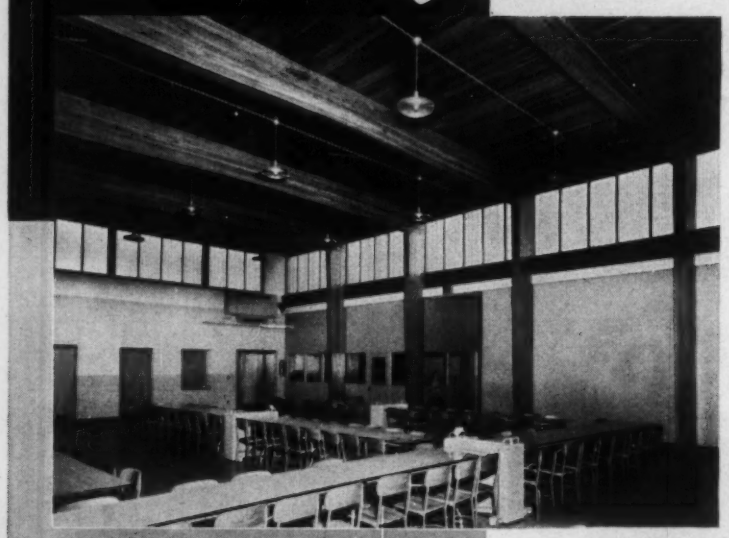
BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
March 23 Michigan March 29 Wisconsin
STREETS AND ROADS
March 23 Michigan March 24 Indiana
March 29 Wisconsin April 12 Ohio

BIDS ASKED—BUILDINGS

▲ **Mich., Birmingham**—SCHOOL—BA 3/30—City, Ames F. Gregory, secy. Bd. Educ., Martin St., Junior High

(Continued on page 86)

BUILD *Charm* INTO YOUR SCHOOLS...



Cafeteria of Centerline High School, Centerline, Mich., is 66'-8" x 62'-4". Glulam timber girders resting upon glulam columns are spaced at 12'. Architects: Brender & Van Reyerdam, Detroit; Atkin-Fordon Co., Detroit, is general contractor.

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Here is school construction of forthright simplicity and unaffected natural charm. Four-inch thick Tim-Deck of beautiful Western Red Cedar is applied directly to glulam timber girders, eliminating closely spaced joists and supplying sheathing, insulation and ceiling finish all in one fast, labor-saving application. With the timber columns supporting the roof load, relatively light and inexpensive outer walls are adequate, giving further economy to the building.

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(Continued from page 84)

School. $2,000,000. Plans deposit $50, refundable. Eberle M. Smith Assoc., 153 E. Elizabeth St., Detroit, archts. CD 6/22.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Oak Lawn Constr. Co.**, 5318 W. 95 St., Oaklawn, Ill., Own Forces, $2,200,000, 200 HOMES, BRIDGEVIEW, ILL. Nerad & Carlsen, 214 Burlington St., Clarenden Hills, Ill., archts.

▲ **Cunningham-Limp Co.**, 3087 W. Grand Blvd., Detroit 1, Mich. CA Est. $2,250,000. PLANT, incl. administration offices, laboratory and engineering, etc., TROY, MICH. Vickers, Inc., 1400 Oakman Blvd., Detroit 38, Mich. CD 3/7.

▲ **Homecraft Builders Corp.**, 4140 Washington St., Chicago, Ill., Own Forces, $2,000,000. 120 HOMES, DOWNERS GROVE, ILL.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

March 25 Missouri — March 29 Kansas

STREETS AND ROADS

March 25 Missouri — March 29 Kansas

▲ **N. D., Minot**—FREIGHT CLASSIFICATION YARD—BA 3/23—Great Northern Ry. Co., R. R. Manion, ch. engr., 175 E. 4 St., St. Paul, Minn., freight classification yard: 40 classification tracks, six receiving and departure tracks, 8 coal and grain tracks, yard office and retarder control tower, 102x600 ft. freight house and transfer platform. $6,000,000.

SOON LETS CONTRACT—BUILDINGS

▲ **Minn., Minneapolis**—PARTS DEPOT—Ford Motor Co., O. B. Higgins, operating mgr., 966 S. Mississippi River Blvd., St. Paul, soon lets contract parts depot comprising of 240x560 ft. warehouse, 1 story, 60x240 ft. office St. Anthony Blvd. and Marshall St. N.E., $1,000,000. CD 11/15/54.

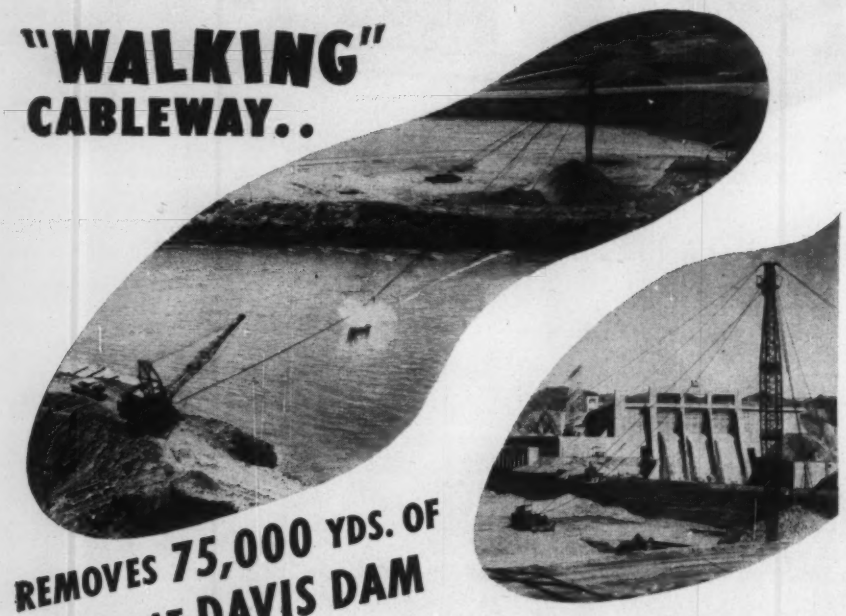
▲ **Tex., Houston**—PARKING GARAGE—Tennessee Gas Transmission Corp., Commerce Bldg., soon lets contract 4-level bsmnt., sub-bsmnt, parking garage, tunnels will be built from the garage to two other office bldgs. $2,240,000. C. Herbert Cowell & Hugo Neuhaus, Jr., 2302 LaBranch St., archts. H. E. Bovay Jr., Esperson Bldg., and Thomas E. Willier, Commerce Bldg., engrs. CD 1/6.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **A. Johnson Constr. Co.**, 608 Foshay Tower, Minneapolis, Minn. CA $1,162,950. sewage treatment plant, ST. CLOUD, MINN. City, A. J. Haberkorn, clk., St. Cloud, Minn. Bids Mar. 1. CD 1/12.

"WALKING" CABLEWAY..



REMOVES 75,000 YDS. OF ROCK AT DAVIS DAM

To deepen the Colorado River from Davis Dam to 2,000 ft. downstream, Grafe-Callahan Construction Co. employed a Sauerman Slackline Cableway in this unusual arrangement:

Mast and hoist of the 2-cu. yd. machine were mounted on wooden mats. Only four "steps" were required in covering the 2,000-ft. distance as the excavation progressed. Maximum span was 600 ft. A crawler crane, running on a 30-ft. cofferdam on the opposite bank, served as tail anchor.

Total excavation was 75,000 yds. of rock. Excavation depth ranged from 10 to 15 ft. to provide the 20-ft. channel depth to lower tailwater at the power plant for maximum effective head on turbines.

Sauerman Slackline Cableways—⅓ to 3-½ cu. yds. in size—span water, bogs or pits to distances up to 1,000 ft. On the ordinary or the unusual job, this Sauerman equipment is unexcelled for deep digging or handling rock, sand, clay, peat and ore.

Experienced Sauerman Engineers can solve your excavating problems. Write today. Request Catalog C, "Slackline Cable ways" and also pertinent field reports.

SAUERMAN BROS. INC.

632 S. 28th Ave., BELLWOOD, Ill.

▲ **Peter Kiewit Sons Co.**, 1024 Omaha Natl. Bank Bldg., Omaha, Neb. and **Morrison-Knudson Co., Inc.**, 319 Broadway Ave., Boise, Idaho. CA $6,949,850, est. $7,666,195. spillway stilling basin, Garrison Dam and Reservoir Proj., Riverdale, Inv. 32-015-55-37, NORTH DAKOTA. U. S. Eng., Riverdale, N. D. Bids Feb. 15. CD 2/21, under LB.

▲ † **Peter Kiewit Sons Co.**, 1024 Omaha Natl. Bank Bldg., Omaha, Neb., LB $1,979,510, pavement for 8 hangars;

J. W. Bateson Co., Gibraltar Life Bldg., Dallas, Tex. LB $2,304,175, hangars, Ellsworth Air Force Base, Inv., 25-066-55-63, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Mar. 8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Wm. Knudson & Sons**, 608 Flynn Bldg., Des Moines, Ia., CA, $2,504,004, general contract North HIGH SCHOOL, DES MOINES, IA. Bd. Educ., 629 3 St., Des Moines, Ia. Bids Feb. 23. CD 3/9, under LB.

FAR WEST

BIDS ASKED—BUILDINGS

▲ **Calif., San Francisco**—MEDICAL CENTER—BA 4/14—Bd. Regents, University of California, Berkeley, (2nd unit) 14 story medical science bldg., incl. teaching laboratiries, classrooms, research laboratories, and a medical library $3,500,000-$4,000,000. Blanchard & Maher, 40 First St., archts. Huber & Knapik, 1 Montgomery St., struc. engrs. Keller & Gannon, 126 Post St., San Francisco, mech. engrs. CD 3/17/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Pittsburgh-Des Moines Steel Co.**, 901 Lane St., Seattle, Wash., CA $2,000,000, 16,000 sq. ft. supersonic wind tunnel, SEATTLE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle 4, Wash. Harman, Pray & Detrich, Lloyd Bldg., Seattle, Zone 1, archts. CD 5/7/52.

▲ **H. K. Ferguson Co., Inc.**, 411 W. 5 St., Los Angeles, Calif., LB $1,598,854, transit shed and retaining wall at Berths 20 and 21, Pier "C" Long Beach Middle Harbor, LONG BEACH, CALIF. Long Beach Harbor Dpt., 1333 El Embarkadero Long Beach, Calif. Bids Mar. 3. CD 2/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Theo. G. Meyer & Sons**, 200 Quint St., San Francisco, Calif., CA $2,340,920, Harbor Slope HOUSING, SAN FRANCISCO, CALIF. Housing Auth. of City and San. Francisco Co., 440 Turk St., San Francisco, Calif. Bids Jan. 19, awarded Feb. 24. CD 1/25, under LB.

CANADA

BIDS ASKED—BUILDINGS

▲ **Ont., Windsor**—DISTILLERY EXPANSION—BA 3/31—Hiram Walker & Sons Ltd., 2067 Sandwich St. E., 6 story mill bldg., 3 story fermenting bldg., 5 story still bldg., for distillery expansion. $5,000,000. Smith, Hinchman & Grylls, Inc., Marquette Bldg., Detroit, Mich., U.S.A., archt. CD 12/22.

▲ **Que., Montreal**—SCHOOL—BA 4/14—Protestant Bd. of School Comrs. of Montreal, 3460 McTavish St., Northmount High School, Lavoie, Legare and MacKenzie Aves. $2,000,000. Plans deposit $100. Durnford, Bolton & Chadwick, 901 Victoria Sq., Montreal, archts. T. G. Anglin, 1010 St. Catherine St. W., engr. CD 12/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Gilpin Constr. Co. Ltd.**, 110 W. Pender St., Vancouver, B. C., CA, $3,450,482, substructure and approaches for main link in four-lane Marpole Bridge system connecting the city and international airport on Sea Island, VANCOUVER, B. C. City, City Hall, Vancouver, B. C., and B. C. Govt., Victoria, B. C. Bids Feb. 16. CD 2/25, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Foundation Co. of Canada Ltd.**, 1032 11 Ave. S.W., Calgary, Alta., CA, $2,600,000, 200-bed HOSPITAL, Prospect Dr. Subdivision, MEDICINE HAT, ALTA. Medicine Hat Municipal Hospital Dist., 69, Medicine Hat, Alta. Bids Mar. 1. CD 1/26.

▲ **Vancouver Pile Driving & Contg. Co. Ltd.**, 207 West Hastings St., Vancouver, B. C., CA, Est. $2,000,000. GRAIN ELEVATOR exten., WORKHOUSE and CLEANING HOUSE, STORAGE FACILITIES, VANCOUVER, B. C. Alberta Wheat Pool Elevator Co., J. Bennett, supt., Vancouver, B. C. C. D. Howe Co. Ltd., P. Utilities Bldg., Port Arthur, Ont., engr.

▲ **Bowman Corp. Ltd.**, 3454 St. Denis St., Montreal, Que., CA, $2,500,000. 250 HOUSING DEVELOPMENT, Levesque Blvd. in St. Vincent de Paul suburban area, MONTREAL, QUE. Pan-American Construction Co., 1082 Beaver Hall Hill, Montreal, Que. Thibodeau & Thibodeau, 1247 Guy St., Montreal, Que., archts. Awarded Mar. 1.

(Proposal Advertisements see pp. 97 to 100)

New Jersey Automatic Pumping Station Bids Close

Close bidding featured the $91,000 water supply improvement letting January 7, for North Camden's standpipe pump station, controls, and electrical work. Havens & Emerson, New York City, is consulting engineer.

The new pump station, awarded to C&T Affiliates, is part of North Camden's 5-million gallon standpipe reservoir. It will maintain system pressure in Camden's industrial section. Contract includes two pumps of 2 mgd, 25 hp and one of 4 mgd, 50 hp.

1C C. & T. Affiliates Inc., Collingswood, N. J.	$63,807
2 Blanding Constr. Co. Inc., Moorestown, N. J.	63,845
7 Hadley Contg. & Constr. Co., Philadelphia, Pa.	78,312

Bids: 1-7-55 Item	Unit	Quantity	Unit Prices 1	2
Exc & fill	cy	300	$10.00	$4.06
Bedding material	cy	25	5.45	5.80
Fndn cushion	cy	10	6.90	5.80
Fencing	lf	2,450	7.00	6.40
Concrete "A"	cy	65	41.00	45.00
"B"	cy	10	50.00	40.00
Addnl portland cement	bbl	3	5.80	5.00
Steel reinf	ton	4.25	260.00	264.00
Manhole	ea	1	182.00	200.00
WIP & fitg 2" & smaller	lf	20	8.10	2.30
Copper tubing 1½"	lf	170	4.00	3.50
Bell & spigot CI pipe	ton	14.5	340.00	300.00
fitg	ton	1.5	660.00	626.00
Flanged CI fitg	ton	9	1,011	725.00
Pipe expansn cplg 12"	ea	2	84.00	46.00
20"	ea	4	170.00	115.00
Gate valve 2"	ea	2	38.50	30.00
10"	ea	2	175.00	173.00
12"	ea	2	261.00	270.00
Hose bibs ¾"	ea	1	35.00	20.00
Circ tide gate, 12"	ea	1	141.00	140.00
Plug valve ½"	ea	1	23.30	20.00
Pumps	ls	1	5,480	6,400
Buildings, brick	ls	1	11,804	14,143
Painting	ls	1	640.00	550.00
Gravel surfacing	sy	3,750	0.78	1.76
Concrete sidewalk	sy	40	6.90	6.40

Controls, awarded to Nelson Co., will provide automatic filling of standpipe when pressure in system exceeds a predetermined value, and will automatically close when the tank is full. When pressure lowers, controls permit standpipe water to fill the system by gravity until tank level reaches a lower limit, then automatically start pumps.

1C Nelson Co., Holmes, Pa.	$24,150
2 C. D. C. Control Services, Inc., Hatboro, Pa.	24,467

Electrical work is to be installed by Audubon Electric Co.

1C Audubon Electric Co., Haddonfield, N. J.	$3,325
2 Mel Downs Elect. Const. Co., Bridgeton, N. J.	3,643
5 Elect. Apparatus & Repair Co., Philadelphia	7,000

Oregon School Costs With Tilt-Up, Lift-Slab

The first lift-slab construction in Portland, Ore., area set the price for building Woodrow Wilson High School at $3.21 million. Including a separate grading contract and architect's fee, the cost per square foot will be $14.80, compared with architect's estimate of $15.20. The building alone is $13.79 per sq ft.

Architect is Edmundson & Kochendoerfer, Portland. Contractor is Hoffman Construction Co.

Dimensions include 232,817 sq ft floor space, 440x545 ft outside area ground, main and second floor classrooms 12 ft floor to floor, a 1,370-seat auditorium, 100x132-ft gymnasium.

Classroom area is designed for lift-slab construction; gymnasium walls, for tilt-up with brick-veneered exterior.

Shear walls along corridor column lines are pre-cast and around stairwells are grouted brick. Gymnasium roof support is two carrying trusses near center of roof and long span joists. Trusses are surrounded by penthouse construction, reducing height of masonry walls by 10 ft.

Heavy concrete shear diaphrams beneath floor, between columns, equalize expected settlement.

Bids 7-14-54, bldg:

1C Hoffman Construction Co., Portland, Ore.	$3,210,100
2 Ross B. Hammond Co., Portland, Ore.	3,237,700
9 Carl M. Halvorson, Inc. & Halvor Halvorson Portland, Ore	4,070,817

Analysis of cost using low bids:

Contracts	Using 1C Total costs	sf	Using 2 Total costs	sf
Grading	$82,000	$0.35	$82,000	$0.35
Building	3,210,000	13.79	3,237,700	13.91
Total const cost	3,292,100	14.14	3,319,700	14.26
Architect's fee	161,684	.....	161,684	.....
Grand total cost	3,453,784	14.80	3,481,384	14.95

Wis. School Bids Provide Many Extras at Low Cost

Bids on Longfellow Junior High School, Wauwatosa, Wis., varied from $9.97 to $12.07 per sq ft and from $0.63 to $0.76 per cu ft. This school is a 1- and 2-story steel and concrete frame structure with brick face and block backup. Floors are asphalt, terrazzo, and ceramic. Besides classrooms the building will provide shops, gymnasium, auditorium, natatorium, and community, music, arts, and dramatic rooms in 190,000 sq ft and 3 mil cu ft.

Architects are Ebling, Plunkett & Keymar, Milwaukee.

Jezo Construction Co., low of 12 bidders at $1,895 million, started work Aug. 1, 1954, must complete by Dec. 31, 1955. Minimum wage rates were: laborer $2.17½ per hr, bricklayer $3.15, plasterer $3.00, carpenter $2.89, operator (mixer on buildings) $2.67, tile setter $2.84.

Bids: 7-1-54

1C Jezo Construction Co., West Allis, Wis.	$1,895,000
2 James McHugh Construction Co., Chicago, Ill.	2,050,000
12 Siesel Construction Co., Milwaukee, Wis.	2,293,000

Variations in quantities will be adjusted with these unit prices:

Items	Unit	Prices	Items	Unit	Prices
Exc, machine	cy	$1.50	Forms, wall	sf	$1.00
hand	cy	5.00	column, beam, girder	sf	1.00
Concrete, mass	cy	30.00	slab, solid	sf	1.00
blk, 8x12x15" lp	ea	0.85	pan const	sf	1.00
Met reinf, net lp	t	200.00			

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Too Many Houses?

Observers warn that boom might go too far

The Senate Banking and Currency Committee's "friendly study" of the stock market brought testimony last week that the boom in housing may be near the saturation point.

This note was injected, unsolicited, into the hearing by Marriner S. Eccles, former chairman of the Federal Reserve Board during the Roosevelt-Truman Administrations.

Eccles said there is too much home-building, pumped up by over-liberal credit terms. He said he felt a sudden slump in home construction could have serious consequences to the economy as a whole and recommended credit terms should be tightened to prevent prospective home-buyers from getting too heavily burdened with debt.

To offset a slowdown in home construction, Eccles recommended school and highway construction programs to take up the slack. He suggested that the "long overdue" highway program be paid for largely through higher gas taxes, increased charges on all commercial vehicles, and tolls where possible.

• **Unexpected support**—Eccles had support from a rather unexpected source—a manufacturer of building materials. Speaking to security analysts earlier in the week, Herbert Abraham, board chairman of Ruberoid Co., said he felt "over production of homes has already begun to show up in quite a few localities." He added that "it won't be too long from today before it begins to show up in quite a few more."

This week, there were other signs that the boom might be leveling off. February home starts set a new record of 90,000 for the month. But the seasonally adjusted annual rate of private starts dropped slightly below the 1.4-million rate set in January. Furthermore, the fact that February starts were below December might be significant. In each of the past three years, February private starts have been above the figure for the previous December.

• **ENR awards**—However, the record-smashing volume of housing contracts reported to ENR indicates that starts should hold close to their present level. Awards for the first 10 weeks of 1955 are 115% above a year ago. Awards in the first two weeks of this month indicate that March has a good chance of being the biggest month on record.

It should be noted that ENR housing awards include several very large contracts where construction will stretch out for over a year or more. Thus such contracts have a gradual long-range effect, not an immediate one on home starts. And large-scale plans could be slowed down or cut back if home sales weaken.

Atom Work Adds to Rising Tide of Industrial Awards

Atomic energy has given private industrial building its first big lift. Consolidated Edison Co. of New York has just awarded Babcock & Wilcox a contract for a $30-$40 million plant near Peekskill, N. Y. At about the same time, Babcock & Wilcox announced it plans to build a $2-million plant at Lynchburg, Va., to make fuel element and reactor core components for nuclear power.

These aren't the first private atomic jobs, of course. Last month, for instance, American Machine & Foundry Co., New York, said it had finished plans for a $1-$1½ million nuclear research reactor and laboratory near New York. This would be owned and operated by a group of private companies whom AMF is inviting to participate. Also, last month Nuclear Development Associates, of White Plains, N. Y., proposed an experimental lab.

Contract awards for all private industrial buildings during the first 10 weeks of this year total $389 million. That's 49% above the low volume in the same period last year.

ENR's backlog of proposed industrial work was $11.8 billion at the end of February, a new record and up 8% from a year ago. And during the first two weeks of March alone, 23 large projects accounted for another $269 million.

On a regional basis, the backlog of industrial work is up in all regions compared with a year ago. Biggest gains, percentagewise, are 9% in both the Middlewest and the West-of-Mississippi. Texas leads the states with $2.3 billion of proposed projects, Missouri comes next with $875 million, and Indiana is third with $75 million.

Correction

Under ENR indexes on page 137 of the March 10 issue, the footnote to the Construction Cost Index should show a revised figure of 614.01 for March 1954, not February.

Biggest Year yet

AGC survey indicates plenty of confidence

Optimism about this year's construction outlook gets further confirmation this week from a survey published by the Associated General Contractors of America. The survey backs up previous forecasts by AGC that construction put in place will reach a record volume of about $56 billion this year. (ENR, incidentally, forecasts an 8% gain in contract awards to a record total.)

The AGC survey, made last month, indicates higher volume in building, highway, and heavy construction. But it also suggests there will be fierce competition for business, perhaps even more intense than last year. Contractors polled by AGC expect material and equipment prices to stay fairly stable during the next six months. But they also expect wage rates to rise and bid prices to decline.

• **Highway field looks best**—The most optimistic outlook is for highway construction. About 72% of the contractors answering the AGC survey expected gains in that field. For building activities, 58% look for an increase, while 56% expect a large volume of heavy construction. Only a very few expect less activity in any of these categories. The rest expect volume to remain at about the same level.

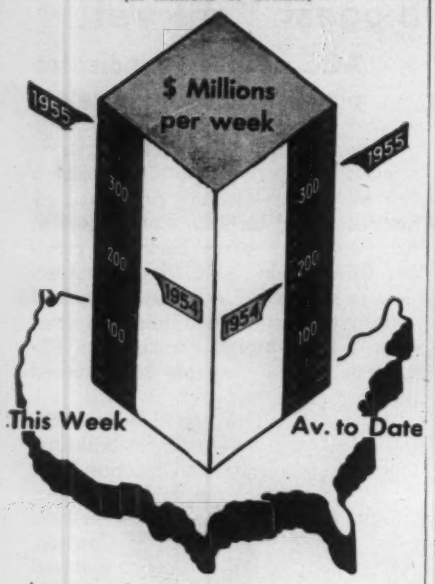
• **Why more competition**—Increasing competition for this increasing volume of business is generally explained this way by respondents to the survey: Many new contractors have entered the construction field; capacity of many of the older firms has increased; more and better equipment enables contractors to work faster and more economically; many contractors have improved their skills; there is much idle equipment and manpower in the industry; some newcomers make dangerously low bids.

Only about one-fourth of the contractors answering the survey expect higher material and equipment prices, and practically no one expects a decrease. Most expect wage rates to rise, with a minority saying they expect no change.

The degree of optimism among contractors varies somewhat by regions. Those in the South, Southwest, and Rocky Mountain states were somewhat less optimistic than those from other areas.

Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	This Week	Cumulative 11 wks 1955	1954	% chge
Federal	$59.4	$378.2	$185.4	+104
State and municipal	94.6	944.3	824.1	+15
Total public	154.0	1,322.5	1,009.5	+31
Total private	220.8	2,163.9	1,173.5	+84
U. S. Total	$374.8	$3,486.4	$2,183.0	+60

Contracts by type of work

Waterworks	$6.8	$60.6	$40.6	+49
Sewerage	7.5	80.3	63.2	+27
Bridges	8.4	105.5	94.1	+12
Highways	37.0	356.5	242.6	+47
Earthwork, waterways	9.7	81.3	59.8	+36
Buildings:				
Public, excl. hsg.	60.1	365.7	327.1	+12
Housg., public	6.1	40.6	39.9	+2
Housg., private	151.8	1,366.8	613.8	+123
Commercial	18.8	269.3	221.6	+22
Industrial	45.8	434.6	291.9	+49
Unclassified	22.8	325.2	188.4	+73
Total	$374.8	$3,486.4	$2,183.0	+60

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

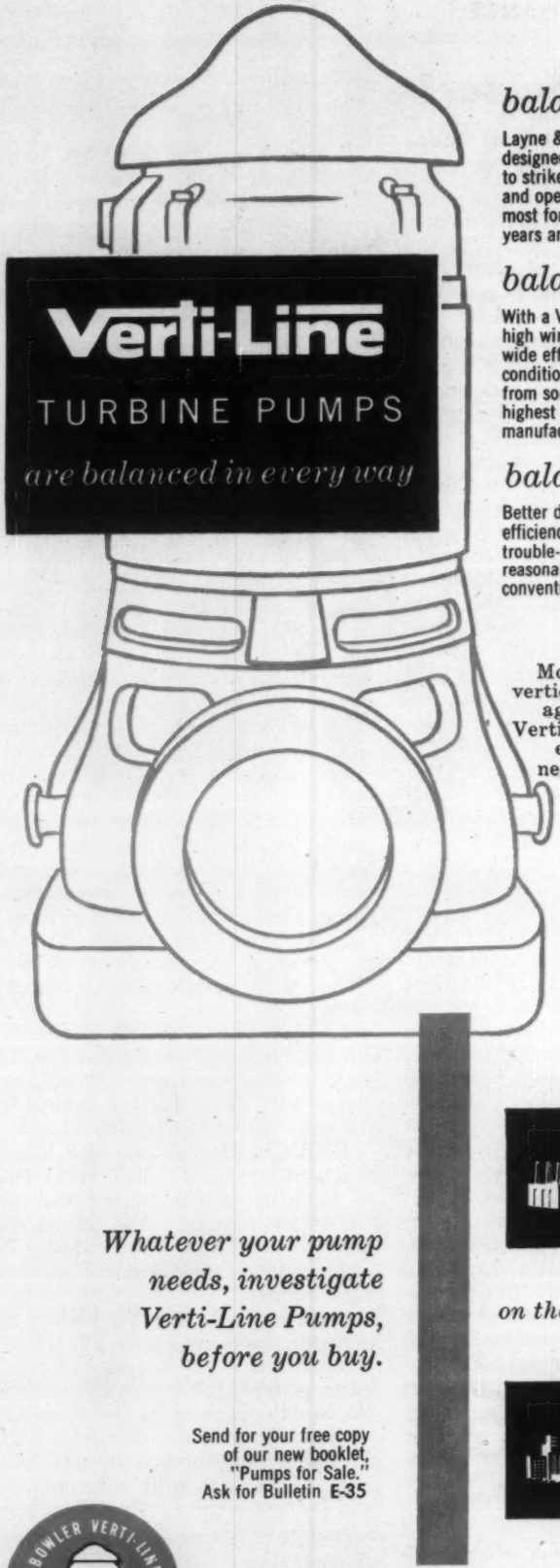
(millions of dollars)

	Week of Mar. 10 1955	Cumulative 10 wks 1955	% chge '54-'55
Corporate securities	$90.5	$601.7	−5
State and municipal:			
All except housing	76.5	716.6	+5
Housing	...	35.6	+63
Federal loans	1.5	18.3	−13
Federal aid	...	...	...
Total non-federal	$168.5	$1,372.2	+1
Federal appropriations:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	$168.5	$1,372.2	+1

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	3/10	645.59	310.34	135.34
	3/3†	645.70	310.39	135.36
Building cost	3/10	459.52	248.40	130.62
	3/3†	459.63	248.46	130.65
Volume	Feb.	459	187	133
	Jan.	560	228	162

† Official monthly indexes for Mar.



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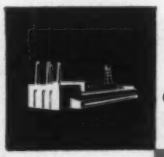

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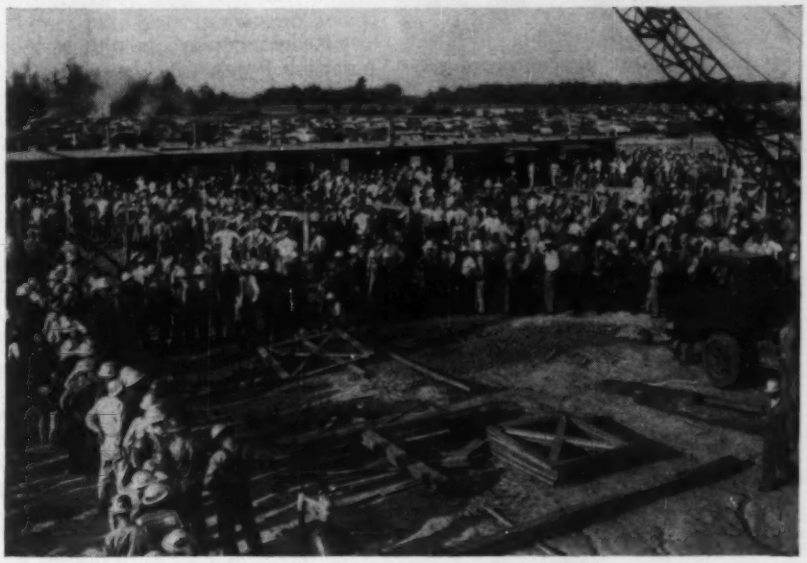
THE LONGER LOOK

Construction workers, not yet in the battle, will keep a watchful eye on what others get in . . .



Labor's Drive for a Guaranteed Annual Wage

C. J. Harding
and
W. H. Chartener

The guaranteed wage will soon trigger off one of the most significant battles in the history of organized labor. Forthcoming negotiations in the automotive industry will thrust this provocative and challenging giant into the field of collective bargaining on a big scale—and perhaps on a permanent basis.

What will it mean to the construction industry? General feeling is the issue won't seriously be raised in the immediate future. Most contractors are quick to say, "For us it's impractical." A few say, "Yes, it will come—not now but eventually."

Unions in the building trades are saying very little. AFL president Meany already has characterized the construction industry as a doubtful prospect.

Present attitude of the AFL is to let individual unions handle the issue on an industry basis. Unions are officially urged to be "realistic"—and to press for weekly wage guarantees where a bigger guarantee is impractical. Teamsters, for example, recently scored a major breakthrough on limited guarantees with contracts providing guaranteed weekly wages in 22 midwestern and southern states. But AFL glass bottle blowers and the big railway shop unions are among those that will press for bigger guarantees this spring.

• **Issue**—The current demands are a logical extension of man's instinctive and eternal quest for security. Behind them lie the deep and disturbing experiences of the last great depression. Beside them stand new and powerful concepts of the "rights" and dignity of the individual—concepts firmly rooted in the tremendous social revolution which began in the 1930s.

The demands have no set formula, the issue no apt name. Whether called a guaranteed wage or guaranteed employment, with or without the word "annual," the goal is to achieve maximum relief from insecurity. That, says the CIO, is a "necessity."

In the CIO's current views the most inviting means to that end is an economic tool, acquired through collective bargaining, which will compel an employer to regularize employment. That tool is a contractual commitment by the employer to guarantee to all, or some, of his employes employment

MEMORIES of breadlines are still strong in minds of workers now seeking security through the guaranteed wage.

. . . Guaranteed annual wage

for a year or less—and if he fails, to fulfill his guarantee by continued payment of wages to those laid off.

• **Cost**—Limiting factor in the feasibility of any such guarantee is, of course, the cost of the employer's commitment and his ability to meet it without going broke. Within the limits of the guarantee, the payroll becomes a fixed cost. Even in industries with reasonably predictable seasonal patterns, there is no sure measure of the costs that can safely be assumed over the longer run. Miscalculations of prospective income have tolled the bell for many plans, and, in the absence of escape clauses, which tend to render plans illusory, could compel an employer to borrow or liquidate to meet his guarantee.

• **Construction**—The problem is particularly acute in the construction industry with its natural peaks that can't be fully eliminated. Contributing factors include: feasts or famines under the contract system; unusual sensitivity to weather conditions; and required use of different skills in sequence in almost all operations. The result is an inability to stabilize employment within narrow limits, and very little certainty about ability to meet costs involved in a guarantee. Certainly no one is willing to undertake a guarantee in free-wheeling.

Because a construction worker's employment is unstable—and in many cases the sum of short-term jobs, often intermittent and from a multiplicity of employers—his hourly wage rate is supposed to reflect this risk and is comparatively high.

Average hourly earnings in the construction industry last year were $2.54. In some trades the figure was much higher. Electricians, for example, averaged $2.92. For General Motors employes, the average was $2.27. For all manufacturing, it was $1.81.

The present wage scales, which unions in the building trades have won, indeed have sopped up much of the potential enthusiasm for a guaranteed wage. Ever since the days of William Green, the unions have recognized that they might have to give up their high hourly rates in return for a guarantee. They also fear that a guarantee, such as the CIO automobile workers seek, would:

• Force an employer to use an employe for more than one kind of work, thus threatening the whole structure of craft unions.

• Reduce employe mobility by freezing work forces.

• Shift the burden of unemployment to those who aren't eligible for a guarantee under the plan.

Some indication of existing attitude is the current interest of California's North Coast Counties District Council of Carpenters in an unemployment benefit system of its own. It is considering the feasibility of establishing a fund, by levying a per capita tax on members, for rounding out income of unemployed members. This suggests the possibility of a demand eventually that contractors, rather than union members, feed the trust fund, in the same manner as they now support funds for vacation pay, pensions, and health and welfare benefits in many areas.

To construction workers, the decision on a guaranteed wage may prove to be essentially a choice between promise of security and rewards of risk. Many feel the rewards of risk—high hourly rates—will win if pitted against a plan affording substantial security but lower wage rates. Demands might take the form of modified guarantees—such as the flat weekly wage of operating engineers or a guaranteed workweek. But in the long run, what the "other fellow" gets will become increasingly important.

• **UAW-CIO demands**—During the upcoming collective bargaining season the auto workers will be carrying the ball on the guaranteed-wage issue. From Chrysler, Ford, and General Motors, whose contracts start expiring May 29, the UAW will seek guarantees against short workweeks for all workers (40 hours' pay for any employe called in) and protection against income loss during layoffs for all seniority workers.

This second feature is the UAW's approach to the guaranteed annual wage. After workers acquire seniority (90 days' employment in a six-month period) they would build up eligibility for payments during layoffs at a rate of one week for every two weeks' employment, up to a maximum of 52 weeks after two years. Payments would be enough for laid-off workers "to maintain the same living standards as when fully employed." Employers' obligations would be reduced by any amount a laid-off worker received in unemployment compensation or from another job taken during the period of the layoff.

The UAW proposes that employer payments be on a pay-as-you-go basis until they reach a certain percentage of payroll, when a reserve trust fund built by regular employer contributions would be used to back up the guarantee. It would not make the concessions typical of traditional plans, mostly employer-sponsored, which allow offsetting of overtime hours in peak seasons against short hours in slack periods and modification or cancellation of the plan by the employer if the going gets tough. The union suggests eventual "reinsurance" of reserve funds to cut the individual employer's fund requirements.

As an indication of its determination to put over its "guaranteed employment plan," the UAW has announced it will build a $25-million strike fund. Auto companies have indicated they will oppose the UAW proposal but are holding off public discussion until the union is more specific about the figures that are vital in estimating likely cost.

• **Unemployment insurance**—Increasing attention is being drawn to state unemployment compensation systems by the UAW proposal that the guaranteed wage be integrated with regular unemployment benefits. Under present law, employers' guarantee payments probably would be regarded as wages and would disqualify workers from receiving benefits concurrently. Changes in law or administrative rulings would have to be made before integration could be effective.

Much of the current agitation for guaranteed-wage plans stems from union belief that unemployment compensation is inadequate. The UAW contends that employers would join in seeking improvements in benefits if these would reduce costs of guarantee payments. For two years the Eisenhower Administration has urged the raising of benefits to at least half an individual's regular earnings and extension of the maximum payment period in all states to 26 weeks. Currently, legislative sessions in some 30 states, in fact, have either liberalized benefits or are considering proposed amendments to unemployment insurance laws.

• **Background**—The idea of the guaranteed wage is not new. Plans began to appear near the end of the last century, and several instituted by employers have been operating 20 to 30 years. From time to time the government has encouraged employers to adopt guaranteed-wage programs, mainly through devices incorporated

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in the Social Security Act, Fair Labor Standards Act and state unemployment insurance laws.

Most of the plans in existence today are concentrated in industries with relatively moderate and predictable seasonal fluctuations and with little sensitivity to general business ups and downs. Although many have been made the subject of collective bargaining, most fall far short of "a guaranteed annual wage," have limited coverage, and contain various escape provisions—including the right of the employer to terminate the plan.

• **Economic goals**—The theory behind guaranteed wages is simple, its promises and ramifications more complex and equivocal. The following results are supposed to flow in sort of a chain reaction from introduction of guaranteed-wage plans:

• Substantial reduction of seasonal fluctuations in production.

• Stabilization of employment.

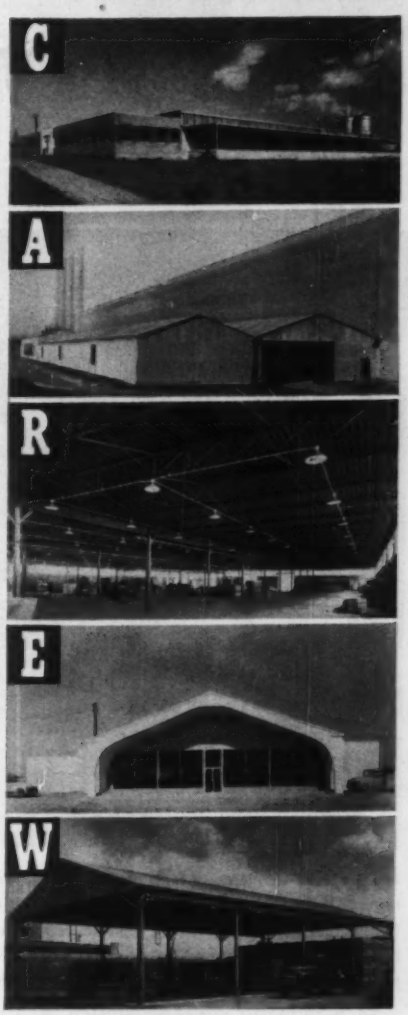
• Strengthening of general consumer purchasing power, in turn contributing to sustained employment in all industries.

• Lessening of cyclical fluctuations in the nation's economy.

Critics, however, stress the limited ability of any particular firm or industry to affect long-term fluctuations or to influence consumer demand. Advent of guarantees on a broad basis, they say, would encourage cut-throat competition, promote monopolistic devices to reduce costs and to control and allocate production, freeze labor forces, and perhaps necessitate new government controls over production, consumption and income flows.

Guaranteed employment plans without nullifying escape provisions, without wage reductions, and without loss of overtime premiums would obviously be a boon to employes individually—if their companies survived. They would also have "a healthy influence on the economy," one group of economists concludes, "if widely adopted and properly coordinated with unemployment insurance, safeguarded against excessive costs and adequately financed." But few contend that such plans, unsupported by other complementary devices under private and government control, are the key to a general economic millennium.

Although subject to endless debate, the issue is here on a big scale and the current grows stronger. If the UAW drive in Detroit is successful, many contractors suspect they will soon be feeling union demands for greater income security in one form or another.



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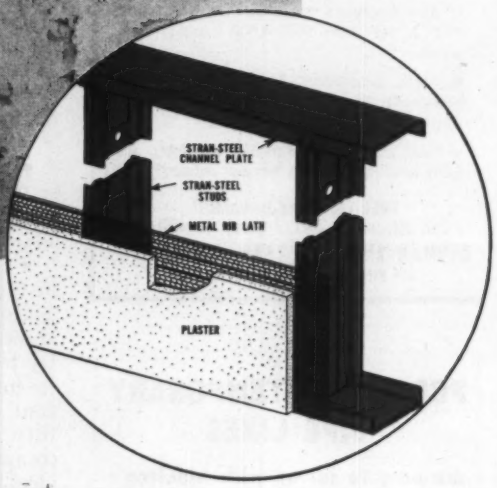

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OFFICIAL PROPOSALS

Bids: April 7, 1955

Maine Turnpike Authority

MAINE TURNPIKE
Section 2—Portland to Augusta
(Augusta Extension)

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACT NO. 227
TOLL PLAZAS—MILE 88 to 106

at the offices of the Authority, 17 Bishop Street, Portland, Maine, until 10:00 A. M., Eastern Standard Time, on April 7, 1955, at which time and place the Proposals will be publicly opened and read.

The work included under this Contract consists generally of the construction of the toll plazas at the Gardiner and Augusta Interchanges, between Mile 88 in the Town of Webster and Mile 106 in the City of Augusta, along the route of the Turnpike Extension, exclusive of the grading, drainage and paving therefor. Each plaza will have a utility building and toll booths with canopy in which toll collection equipment will be installed by others.

Contract documents may be examined by prospective bidders during regular office hours at the offices of the Authority at the above address and at the offices of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., and may be obtained from the Authority, 17 Bishop Street, Portland, Maine, upon payment of Thirty Dollars ($30.00) for each set. Contract documents need not be returned and the payment will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be accompanied by a certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than five per cent (5%) of the Lump Sum quoted in the Proposal but not less than $500.00 nor more than $200,000.00.

Proposals must be made upon the Proposal forms furnished separately by the Authority with the contract documents and must be enclosed in the sealed special addressed envelopes provided therefor bearing the name and address of the bidder and the number of the Contract on the outside.

Before the award of the Contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work within the time required and to the satisfaction of the Authority.

The bidder, to whom a Contract is awarded, will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, in an amount not less than the Lump Sum quoted in the Proposal.

The Authority reserves the unqualified right to reject all Proposals or to accept that Proposal which in its sole judgment will under all circumstances serve its best interests. The Contract will be awarded or Proposals rejected within thirty days after the date of opening Proposals, except that in the event of default by a successful bidder the Authority reserves the right to accept the Proposal of any other bidder within twenty days after such default.

MAINE TURNPIKE AUTHORITY
Paul C. Thurston, Chairman

Portland, Maine
March 8, 1955

Bids: April 7, 1955

Maine Turnpike Authority

MAINE TURNPIKE
Section 2—Portland to Augusta
(Augusta Extension)

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACT NO. 226
TOLL PLAZAS—MILE 51 to 88

at the offices of the Authority, 17 Bishop Street, Portland, Maine, until 10:00 A. M., Eastern Standard Time, on April 7, 1955, at which time and place the Proposals will be publicly opened and read.

The work included under this Contract consists generally of the construction of the toll plazas at the Gray, Auburn and Lewiston Interchanges, between Mile 51 in the Town of Falmouth and Mile 88 in the Town of Webster, along the route of the Turnpike Extension, exclusive of the grading, drainage and paving therefor. Each plaza will have a utility building and toll booths, with canopy, in which toll collection equipment will be installed by others.

Contract documents may be examined by prospective bidders during regular office hours at the offices of the Authority at the above address and at the offices of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., and may be obtained from the Authority, 17 Bishop Street, Portland, Maine, upon payment of Thirty Dollars ($30.00) for each set. Contract documents need not be returned and the payment will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

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The Authority reserves the unqualified right to reject all Proposals or to accept that Proposal which in its sole judgment will under all circumstances serve its best interests. The Contract will be awarded or Proposals rejected within thirty days after the date of opening Proposals, except that in the event of default by a successful bidder the Authority reserves the right to accept the Proposal of any other bidder within twenty days after such default.

MAINE TURNPIKE AUTHORITY
Paul C. Thurston, Chairman

Portland, Maine
March 8, 1955

Bids: April 1

Board of Chosen Freeholders

NOTICE TO CONTRACTORS

Sealed bids will be received by the Board of Chosen Freeholders of the County of Hudson on THURSDAY, APRIL 14, 1955 at 11:00 a.m. in the Freeholders' Assembly Chamber, at Hudson County Court House, Newark Avenue, Jersey City, New Jersey, for the following contracts for construction of the Hudson County Administration Building, Jersey City, New Jersey:

Contract No. 2—General Construction Work
Contract No. 3—Structural Steel and Ornamental Iron Work (Titled in Specifications as Structural Steel & Miscellaneous Iron Work)
Contract No. 4—Plumbing and Gas Fitting and Kindred Work (Titled in Specifications as Plumbing Work)
Contract No. 5—Steam and Hot Water Heating and Ventilating Apparatus Work (Titled in Specifications as Heating and Ventilating Work)
Contract No. 6—Electrical Work
Contract No. 7—Elevator Work

in accordance with drawings, specifications, alternates and addendums obtained at the office of Mascolo & Masumian, Architects, Room #703, 880 Bergen Avenue, Jersey City, New Jersey, upon deposit of $50.00 per set in the form of certified check, which deposit will be refunded upon return of drawings, specifications, alternates and addendums in good condition and intact to the Architects. Blank proposal forms to be obtained with each set.

Each bid must be accompanied by (a) cash or certified check payable to the order of Treasurer of the County of Hudson in a sum equal to ten per cent of the bid, but not to exceed the sum of $20,000 in accordance with Revised Statutes of New Jersey 40:25-9, the deposit to be subject to the conditions in the specifications; (b) an agreement to deliver bid bonds duly certified; (c) a certificate from a surety company authorized to do business in New Jersey, that such company will provide the bidder with a performance bond called for in the specifications, and in the amount of the contract and bid price; (d) a certificate, as required by the specifications, showing that the bidder owns, controls or will control all necessary equipment; and (e) a written statement of the bidder setting forth his present financial position and prior experience in doing such work as must be done to execute the tasks required by the plans and specifications.

Bids must be enclosed in sealed envelopes endorsed in the following manner: "Proposal for Contract No. 2—General Construction Work, Hudson County Administration Building," and similarly for other contracts, and handed to the Clerk of the Board of Chosen Freeholders in open meeting on April 14, 1955 when called for in the order of business transacted. No bid will be received previous to the hour aforesaid, and none will be received thereafter. At such time and place all bids received will be unsealed immediately, the contents thereof will be publicly announced and a proper record of the bids and terms will be made upon the minutes of the Board.

Attention of bidders is called to the existence of statutes and regulations relative to safety of workmen, hours of labor, workmen's compensation insurance, preference for and prohibition of certain types of labor, anti-discrimination against labor, and other particular statutes and regulations affecting the proposed public work, together with regulations, rules and ordinances of the municipality in which the work is to be done.

Once submitted, no bid can be withdrawn without consent of the Board of Chosen Freeholders, and the said Board of Chosen Freeholders reserves the right to reject any and all bids and to waive any defects in the bids or bid proposals when it is deemed advisable to do so.

JOSEPH B. CULLOO, Clerk,
Board of Chosen Freeholders.

Bids: March 31, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF TOWERS, GUIDES, SILLS AND DOGS
SPECIFICATIONS NO. PA 5-15078
ST. LAWRENCE CONTRACT NO. P9

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the manufacture and furnishing of Towers, Guides, Sills and Dogs for all spillway gates at Long Sault Dam and for all control gates at Iroquois Dam and delivery thereof f.o.b. destination, until 10:30 A.M. Eastern Standard Time on the 31st day of March, 1955 at the Authority's office, 270 Broadway, Hearing Room C on the 6th floor, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The work involves the fabrication and delivery of approximately 3,500 tons of structural steel and rails. Bids will be entertained for all the metalwork for any one dam or for both dams in accordance with the bidding schedules. Erection at the site of installation will be done by others.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1306, New York 7, New York upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 percent of the maximum price bid for any bid schedule.

The right is reserved to reject any or all bids.

W. S. Chapin
GENERAL MANAGER

OFFICIAL PROPOSAL

RATE: $1.50 per line (or fraction) per insertion.

CLOSING DATE: 10:30 p.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: March 31, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the Provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 31st day of March 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 3, William Robinson, District Engineer, 301 E. Water Street, Syracuse, N. Y.						
Onondaga	C 55-2	City of Syracuse: Oswego Boulevard (Park to North Salina St.)	0.28	Asphalt Conc. Opt.	$1,500 Plans $10	$28,000
DISTRICT No. 4, E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	FATC 55-1	Rochester City: Inner Loop. Proj. U-231(7), U-1089(6)	0.29	Traffic Signal System	$1,300 Plans $10	24,000
DISTRICT No. 5, C. R. Waters, District Engineer, 65 Court Street, Buffalo, N. Y.						
Chautauqua	FARC 55-5	Penn. State Line–Dunkirk, Pt. 2, S.H. 8334.Proj. F-458(11)	0.57	Asph. Conc., Opt.=0.36 Mi. Misc. Work=0.21 Mi. Widen 3 existing 24' Span Conc. Slab Bridges	$19,000 Plans $15	343,000
Erie	FARC 55-2	Jamison–East Elma, S.H. 925. Proj. S-409(1)	0.09	Asph. Conc., Opt.=0.06 Mi. Misc. Work=0.03 Mi. Comp. I-Beam Br. 172'	$7,000 Plans $10	132,000
Erie	FARC 55-3	Southwestern Boulevard, S.H. 9269. Transit Road, Pts. 1 & 4, S.H. 9217. Proj. U-1079(4)	0.71	9" Two Course Cem. Conc. Pavt. 52' Wide=0.62 Mi. Misc. Work=0.09 Mi.	$15,000 Plans $10	259,000
Erie	FARC 55-6	Lancaster Village, S.H. 915. Lancaster–Alden, S.H. 917. Proj. F-542(4)	4.14	Asp. Conc. Opt.=4.10 Mi. Misc. Work=0.04 Mi. Widen Exist. 29.8' Span Conc. Slab Bridge	$52,000 Plans $15	943,000
DISTRICT No. 7, Robert W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
Clinton	DARC 55-1 DAC 55-1	Plattsburgh–Keeseville, Pt. 1, S.H. 56. City of Plattsburgh: South Peru Street. Proj. D-RD-7(2)	2.76	Asp. Conc., Opt.=2.75 Mi. Misc. Work=0.01 Mi.	$28,000 Plans $15	498,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Rockland and Westchester	H.T. 55-1	New York State Thruway—Hudson Section—Sub. 9B (Tappan Zee Bridge & Approaches)	3.39	Lighting Facilities	23,00 Plans $10	386,000
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Rd., Babylon, L. I., N. Y.						
Suffolk	FARC 55-4	Huntington Town Line–Farmingdale, Pt. 1, S.H. 1218. Huntington–Amityville, Pt. 2, S.H. 1219. Maywood–Babylon, S.H. 1841. Proj. U-UG-297 (3), D-AD-U-8(2)	4.03 (Acc. 0.47)	9" Cem. Conc. Pavt. 2 @ 25' Wide=1.71 Mi. Asp. Conc. Opt.=2.04 Mi. Temp. Asp. Conc. Opt.=0.17 Mi.; Misc. Work=0.11 Mi. (Acc. Rd. Cem. Conc. Pavt.=0.39 M.). (Acc. Rd. Asp. Conc. Opt. =0.08 Mi.). 1 RR Sep. Conc. Rigid Frame 43'. 1 Hy. Sep. Comp. I-Beam 178'	130,000 Plans $50	2,349,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

John W. Johnson,
SUPT. OF PUBLIC WORKS

Bids: March 24, 1955

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Canal Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on March 24, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

CONTRACT M-55-1 FOR CLEANING AND PAINTING WEBSTER ST. BRIDGE, E-248, OVER THE BARGE CANAL AT TONAWANDA, ERIE AND NIAGARA COUNTIES, NEW YORK

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. Charles R. Waters, District Engineer, 65 Court St., Buffalo 2, New York.
(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $7,830.00.

Bids, with their guarantees, must be securely sealed in envelopes, addressed and marked on the outside as required by the invitations. A guarantee will be required with each bid in the sum of $450.00. The bidder shall furnish a certified check on some solvent banking institution in the State of New York, a draft issued by a National or State Bank or Trust Company in good credit within the State on some solvent banking institution in the City of Albany or the City of New York and payable on sight to the State of New York or deposit United States bonds (at par value) as security in the amount required. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Canal Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids. John W. Johnson
SUPERINTENDENT OF PUBLIC WORKS

Bids: April 5, 1955

Contract 418

CHLORINATING EQUIPMENT

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, April 5, 1955, for Contract 418, for furnishing, delivering, installing and testing chlorinating and appurtenant equipment for the Neversink intake chamber, located in the Town of Neversink, Sullivan county, New York, and the East Delaware intake and Downsville release water chambers, located in the Town of Colchester, Delaware county, New York, and for furnishing and delivering air compressor units for the Rondout, West Branch and Kensico South effluent chambers, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of six thousand dollars ($6,000.00), for the proper execution of the Contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1317, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

READ THE OFFICIAL PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

Bids: March 29, 1955

New Jersey Turnpike Authority

CONTRACT NO. N-25D

Proposals are invited for Contract No. N-25D which involves the construction of the concrete decks, and other incidental work, for a portion of the North Terminal Ramps, comprising the Southbound Ramp along Fourteenth Street from Pier SB45 just east of Monmouth Street to its east abutment between Coles Street and Jersey Avenue, and the Northbound Ramp along Twelfth Street from Pier NB35 west of Monmouth Street to its east abutment between Coles Street and Jersey Avenue, and the reconstruction of adjacent portions of the concrete decks on the existing Twelfth and Fourteenth Street Viaducts, in Jersey City, Hudson County, New Jersey, all in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:

Concrete	2,400 Cu. Yds.
Reinforcement Steel	435,000 Lbs.
Erecting Metal Railing	2,290 Lin. Ft.

Proposals will be received at the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Standard Time on the morning of March 29, 1955, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after March 11, 1955 at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned, and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

March 10, 1955

OFFICIAL PROPOSALS

Bids: April 6, 1955

Indiana Toll Road Commission 309 W. Washington Street Old Trails Building Indianapolis, Indiana

NOTICE TO BIDDERS
Contract No. C-3/4

Sealed proposals will be received by the Indiana Toll Road Commission at or before 11:00 A.M., Central Standard Time, April 6, 1955, for the performance of the contract enumerated above.

The grading, drainage, structures and paving of approximately 1 mile in Construction Section C-3/4 of the Indiana East-West Toll Road beginning at a point about 159 feet north of the centerline of Huehn Street at Toll Road Centerline Station 466+62.97 and extending southeastwardly to a point about 407 feet southeastwardly from the centerline of West 149th Street at Station 520+56, all in the City of Hammond, Lake County, Indiana.

This project also includes the construction of bridges and embankments for the relocation of the Chicago South Shore and South Bend Railroad, located as follows: Beginning at a point about 28 feet westwardly from Cedar Avenue at Railroad Station 3610+80 and extending eastwardly and southeastwardly for a distance of approximately 1 mile to a point about 450 feet southeastwardly from the centerline of West 149th Street at Railroad Station 3557+22, all in the City of Hammond, Lake County, Indiana.

The approximate quantities of the major items of construction are as follows:

Common Excavation	5,200 cu. yds.
Borrow	838,000 cu. yds.
10" Reinforced Concrete Pavement	23,300 sq. yds.
Hot Asphaltic Concrete Surface Course	1,650 tons
Culvert Pipes and Underdrains	18,200 lin. ft.
Concrete for Structures	17,425 cu. yds.
Reinforcing Steel	2,675,000 lbs.
Fabricated Structural Steel	12,000,000 lbs.
Metal Handrail	9,000 lin. ft.
Steel Piling	32,500 lin. ft.

Copies of the Plans, Specifications and Proposal Forms for said Contract are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road	$ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section	$25.00
Informational Drawings	
Cross Sections, per set, per Construction Section	$25.00
Soil Plans and Profiles, per set, per Construction Section	$ 5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) per cent of the total price bid for the Contract. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 11:00 A.M., Central Standard Time, April 6, 1955, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of the above Contract, if any award be made, will be to the Bidder or Bidders whose Proposal is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger
Chairman

Charles W. Keating
Secretary-Treasurer

OFFICIAL PROPOSALS

Bids: March 31, 1955

Sewage Treatment Project City of Fredericksburg, Virginia

Notice of Letting

Sealed proposals for the furnishing of materials and labor to construct the Sewage Treatment Project of the City of Fredericksburg, Virginia will be received from qualified bidders at the City Hall, Fredericksburg, Virginia until 2 P.M., Eastern Standard Time, March 31, 1955 at which time and place they will be publicly opened and read.

Each proposal shall be submitted in a sealed envelope marked "Sewage Treatment Project, Fredericksburg, Virginia", and shall also be marked with the name of the contractor and the Virginia contractor's license number. If the proposal is forwarded by mail, it shall be enclosed in an additional envelope addressed to the City Manager, City of Fredericksburg, Virginia. If submitted other than by mail, it shall be delivered to the City Manager's Office, City Hall.

The work to be done under this contract embraces the construction of the following: Reinforced concrete and masonry sewage pumping station; reinforced concrete grit removal structures and screenings shredder, two reinforced concrete primary settling tanks, two reinforced concrete sludge digestion tanks and concrete and masonry control building, reinforced concrete chlorine contact tank with masonry chlorination house, sludge drying beds, outfall sewer into the Rappahannock River, approximately 2,800 lineal feet of reinforced concrete pipe interceptor sewers ranging in size from 12 inch to 36 inch diameter, grading, seeding and sodding and other appurtenant work.

Each bid shall be accompanied by a certified check or bid bond in the amount of five (5) percent of the total bid, made payable to the City of Fredericksburg, Virginia.

Drawings and specifications may be obtained from the office of the City Manager, Fredericksburg, Virginia, or from the office of Whitman, Requardt and Associates, 1304 St. Paul Street, Baltimore 2, Maryland, upon deposit of Fifteen Dollars ($15.00) for each set of drawings and specifications which deposit will be refunded upon return of the plans and specifications in good condition.

The City of Fredericksburg reserves the right to reject any or all bids and to accept the bid which in its opinion best serves the interests of the City.

By order of

Levin J. Houston, Jr.
City Manager

Bids: April 12, 1955

Contract EXD-130.015

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
EIGHTH FLOOR ALTERATIONS

Sealed proposals for performing alterations to a portion of the eighth floor of the Port Authority Building, 111 Eighth Avenue, New York, N. Y., will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, April 12, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, March 17, 1955

OFFICIAL PROPOSALS

Bids: April 22, 1955

Jersey City Incinerator Authority

NOTICE TO BIDDERS

Sealed proposals for furnishing materials and doing all work required for the construction of a Garbage and Refuse Incinerator in the City of Jersey City will be received by the Jersey City Incinerator Authority in the Assembly Chamber of City Hall, Jersey City at 10 A.M. Eastern Standard Time on Friday, April 22, 1955 at which time and place they will be publicly opened and read.

The project includes a complete four (4) furnace circular, mechanically stoked Incinerator capable of destroying 600 Tons in twenty-four (24) hours on a crane and bin type operation. The project also contains an Administration Building for the Authority.

Separate or combined proposals will be received on the seven (7) divisions of the work as follows:

Contract A—General Construction
Contract B—Incinerator and Appurtenances
Contract C—Chimney and Appurtenances
Contract D—Structural Steel and Iron
Contract E—Plumbing and Drainage
Contract F—Heating, Ventilating and Air Conditioning
Contract G—Electrical Work

In accordance with Section 40:50-5 of the Revised Statutes of the State of New Jersey, bidders will be required to furnish a financial statement and complete questionnaire on the form issued by the Authority, to establish the bidder's financial standing, experience and ability to perform the work. No questionnaire will be received by the Authority after April 12, 1955. Within seven (7) days after submission of the financial statement and questionnaire, if approved by the Incinerator Authority, bidders will be permitted to obtain plans and specifications on deposit of $100.00 each for Contract A to G at the offices of Louis P. Booz, Consulting Engineer to the Authority, 117 Smith Street, Perth Amboy, New Jersey.

Forms of questionnaire and financial statement to prospective bidders shall be obtained at the office of the Jersey City Incinerator Authority, Room 24, City Hall, Jersey City. The deposit for the plans and specifications will be returned to bidders who submit bids and who return both the plans and specification in good condition within ten (10) days after bids are received.

A certified check or bank draft payable to the Jersey City Incinerator Authority in the amount of five per cent (5%) of the bid shall be submitted with each bid.

Each proposal must be also accompanied by the appropriate surety's consent, by a surety company qualified to do business in the State of New Jersey, binding itself to become surety for the full and faithful performance of the Contract in an amount equal to 100% of the Contract price for the protection of all persons furnishing materials or labor, for fulfilling this Contract in accordance with R. S. 2A:44-143 etc.

The check or bank draft delivered with the proposal as aforesaid shall be returned to all except the three (3) lowest bidders after the opening of the sealed bids. The checks of these three (3) lowest bidders shall be held for sixty (60) days or until award of the Contract or rejection of bids.

All proposals, checks and drafts must be submitted to the Incinerator Authority at the time specified in the advertisement for proposals. None will be accepted by mail nor will any proposal be received subsequent to the time specified in this advertisement.

No bid shall be withdrawn for a period of sixty (60) days subsequent to the opening of bids without the consent of the Jersey City Incinerator Authority of the City of Jersey City.

The Jersey City Incinerator Authority reserves the right to reject any or all bids and to waive any informality in the bids.

Jersey City Incinerator Authority

Dated March 4, 1955

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4370) will be received at DeBaca County Court House, Fort Sumner, New Mexico, until April 14, 1955, for furnishing labor and materials for Alamogordo Dam Enlargement, Carlsbad Project, New Mexico. Location 15 miles northwest of Fort Sumner, New Mexico. Principal items are excavation 440,000 cu. yds.; embankment 335,000 cu. yds.; concrete 3,500 cu. yds.; and other work. Completion time 412 days. For particulars, address Bureau of Reclamation, Amarillo, Texas; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: March 24, 1955

Construction of Project No. 771-F

ITEM I
ADVERTISEMENT FOR BIDS

Sealed proposals will be received by the Board of Water and Sewer Commissioners of the City of Mobile, in the City Hall, at Mobile, Alabama until 2:00 P.M. C.S.T., March 24, 1955 and then publicly opened, for furnishing all labor and materials, and performing all work required for the construction of Project No. 771-F, Conception Street Interceptor. The approximate quantities are as follows:

240 lin. ft. tunnel for 54" concrete pipe
540 lin. ft. tunnel for 48" concrete pipe
2,125 lin. ft. tunnel for 42" concrete pipe
775 lin. ft. tunnel for 36" concrete pipe
240 lin. ft. 54" concrete pipe in tunnel
540 lin. ft. 48" concrete pipe in tunnel
2,125 lin. ft. 42" concrete pipe in tunnel
775 lin. ft. 36" concrete pipe in tunnel
1,790 lin. ft. 54" concrete pipe open cut
4,195 lin. ft. 48" concrete pipe open cut
1,412 lin. ft. 36" concrete pipe open cut
34 ea. Manholes

The project includes the necessary installation of smaller sizes of vitrified clay pipe from 8" to 24" in diameter and other appurtenances necessary for the completion of the project.

All bids must be on blank forms provided in the Specifications. A certified check or a Bidder's Bond, payable to the Board of Water and Sewer Commissioners of the City of Mobile, for an amount not less than 5% of the amount bid, but in no event more than $10,000.00 shall be filed with the proposal, the Bidder's Bond being prepared upon the form specified and signed by a Bonding Company authorized to do business in the State of Alabama.

A Performance Bond in an amount not less than the sum bid will be required at the signing of the Contract, and, in addition, a bond in an amount not less than 50% of the contract price, insuring payment for all labor and materials. The right is reserved to reject any and/or all bids and to waive informalities.

Minimum wage rates on the project shall be not less than those established by Federal and/or State Agencies having jurisdiction.

Plans and Specifications are on file, and may be seen in the office of the Board of Water and Sewer Commissioners of the City of Mobile, and in the office of the Ewin Engineering Corporation, Mobile, Alabama. Plans and Specifications may be obtained by depositing $100.00 with the Engineer, which will be refunded, for one set only, to those Contractors submitting a bona fide bid and returning the Plans in good condition to the Engineer within five days after opening of bids. All other deposits will be refunded (with deductions not exceeding the actual cost of reproduction of the documents) upon return of all documents in good condition within five days after the date of opening bids.

No bid will be considered unless the Bidder, whether resident or non-resident of Alabama, is properly qualified to submit a proposal for this construction in accordance with all applicable laws of the State of Alabama. This shall include evidence of holding a current license from the State Licensing Board for General Contractors, Montgomery, Alabama.

No bid shall be withdrawn for a period of 30 days subsequent to the opening of bids without the consent of the Board of Water and Sewer Commissioners of the City of Mobile.

BOARD OF WATER AND
SEWER COMMISSIONERS
OF THE CITY OF MOBILE
By: Wright Smith, Jr., Chairman

U. S. Government

Department of Commerce, Bureau of Public Roads, March 4, 1955. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., MARCH 30, 1955, for Project 1A4B6, Shenandoah National Park, Rappahannock, Page and Madison Counties, Virginia. 12.965 miles paving and other work from Thornton Gap to Crescent Rock. The approximate quantity of the principal item is 28,740 tons Type H-1 Asphalt Pavement, Liquefier Type. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above or Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Spelman, Division Engineer.

OFFICIAL PROPOSALS

Bids: April 14, 1955

City of Knoxville, Tennessee

NOTICE TO BIDDERS

Seal proposals, invited by the City of Knoxville, will be received by the City Purchasing Agent at the office of the Purchasing Agent, City Hall, Knoxville, Tennessee, until 10:00 A.M., April 14, 1955, at which time they will be publicly opened and read aloud, and the contracts awarded as soon thereafter as practicable for the construction of a new sanitary trunk sewer and appurtenant structures along Second Creek from Western Avenue north to the intersection of the Lonsdale and Lincoln Park lines north of Emerald Avenue, and the construction of the necessary connecting lines and appurtenant structures thereto.

The main line will consist of installing approximately 2,464 lineal feet of 27" pipe, 4,410 lineal feet of 30" pipe, 1,195 lineal feet of 36" pipe, 464 lineal feet of 30" pipe laid in tunnel section in steel liner, and 740 feet of 36" cast in place concrete sewer in tunnel section. All main line sewers are to be connected with rubber gaskets.

The connecting lines will consist of installing approximately 334 lineal feet of 21" sewer pipe and approximately 3,150 lineal feet of 6", 8", and 10" sewers. All connecting line sewers are to be connected with hot-poured bituminous joints.

Three-hundred and sixty-five calendar days will be allowed for this construction.

The instructions to Bidders, Proposal, Specifications and Plans may be examined at the office of the City Engineer, City Hall, Knoxville, Tennessee. Copies of these Contract Documents may be obtained upon the deposit of twenty-five dollars ($25.00) for any set. Any bidder, upon returning such set promptly and in good condition, will be refunded his deposit, and any non-bidder, upon so returning such set, will be refunded one-half of his deposit.

Each proposal must be accompanied by money or a certified check on a solvent bank or trust company, made payable to the City of Knoxville, in the amount of five per cent (5%) of the total bid, as assurance that the bid is made in good faith.

All bidders must be licensed contractors, as required by Chapter 135 of the Public Acts of 1945, as subsequently amended by the General Assembly of the State of Tennessee.

Attention is called to Section 9 of the Rules and Bylaws adopted April 27, 1945 by the State Board of Licensing General Contractors, Nashville, Tennessee, which reads in part as follows: ....

"The architect or engineer shall direct that the number and date of license appear on the envelope containing the bid; otherwise the bid will not be opened."

The City of Knoxville reserves the right to waive any informalities in or to reject any or all bids and to accept the bid which it deems most favorable to the interest of the city, after all bids have been examined and canvassed.

CITY OF KNOXVILLE
(SIGNED) CHARLES O. CURRIER
CITY PURCHASING AGENT
DATED: MARCH 4, 1955
KNOXVILLE, TENNESSEE

Bids: April 19, 1955

Contract LT-160.026

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL—THIRD TUBE
NEW JERSEY VENTILATION BUILDING

Sealed proposals for the construction of the New Jersey Ventilation Building for the Third Tube of the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, April 19, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $50.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $50.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, March 17, 1955

OFFICIAL PROPOSALS

Bids: April 12, 1955

Contract HP-120.009

THE PORT OF NEW YORK AUTHORITY
HOBOKEN-PORT AUTHORITY PIERS
HEADHOUSE—AREA 4
ALTERATIONS TO SECOND FLOOR

Sealed proposals for performing alterations to the second floor of the Headhouse (Area 4) at the Hoboken-Port Authority Piers, Hoboken, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, April 12, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, March 17, 1955

STATE OF MARYLAND, STATE ROADS COMMISSION. NOTICE TO CONTRACTORS: SEALED PROPOSALS for the following contract: PATAPSCO TUNNEL PROJECT, BALTIMORE CITY—CONTRACT P.T. 107-1—TEST BORINGS FOR DESIGN SECTION D-3. Exploration of subsurface conditions at various locations along and immediately adjacent to the route of the Patapsco Tunnel Project by means of approximately 4,000 feet of earth borings with "dry" samples, "Shelby" tube samples, and undisturbed samples as may be required. Work under this contract also includes a limited amount of casing left in place. The Design Section D-3 extends from the intersection of Fourth Street and Chesapeake Avenue in Baltimore City east for approximately 1.4 miles along Frankfurst Avenue. The employment agency for furnishing labor on the above contract is: MARYLAND STATE EMPLOYMENT SERVICE, 41 HOPKINS PLACE, BALTIMORE, MARYLAND. Will be received by the State Roads Commission at its offices, 108 East Lexington Street, Baltimore 3, Maryland, until 12 Noon E.S.T. on the 22nd day of MARCH, 1955, at which time and place they will be publicly opened and read. QUALIFICATION OF BIDDERS REQUIRED. Bids must be made upon the blank proposal form which, with specifications and plans, will be furnished by the Commission upon application and cash payment of $5.00 for each separate set. NO REFUND WILL BE MADE FOR RETURN OF SPECIFICATIONS AND PLANS. No bids will be received unless accompanied by a certified check or bid bond payable to the State Roads Commission of Maryland, in the amount as set forth in the proposal form, as required by Section 13, Article 89B, Annotated Code of Maryland, 1951 Edition. The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts. The Commission reserves the right to reject any and all bids. BY ORDER of the State Roads Commission this 8th day of MARCH, 1955. C. R. PEASE, Secretary. RUSSELL H. McCAIN, Chairman.

OFFICIAL PROPOSALS

Bids: April 14, 1955

City of Detroit, Michigan

ADVERTISEMENT FOR
HIGH LIFT STRUCTURE
NORTHEAST STATION FOR THE
DEPARTMENT OF WATER SUPPLY

CONTRACT NO. NE-10

Sealed proposals for the construction of the High Lift Structure for the Northeast Station, at 11000 East Eight Mile Road, will be received by the Board of Water Commissioners of the City of Detroit. Proposals shall be addressed to the Board of Water Commissioners, City of Detroit, Room 506 Water Board Building, 735 Randolph Street, Detroit 26, Michigan, and shall be endorsed "Proposal for Contract No. NE-10". Proposals will be received until 2:00 P.M. Eastern Standard Time, April 14, 1955, at which time they will be opened and read aloud in the Board Room, Fifth Floor, Water Board Building, 735 Randolph Street, Detroit 26, Michigan.

Included in the work is the construction, upon an existing reinforced concrete foundation, of the substructure and superstructure of the High Lift Plant of the Northeast Station. The substructure, approximately 129 feet by 209 feet in plan and approximately 36 feet in depth below grade, is to be constructed of reinforced concrete. The one-story superstructure approximately 64 feet by 209 feet in plan with an approximate height of 41 feet, finished grade to top of coping, is to be constructed with structural steel rigid frames, reinforced concrete roof, masonry walls with limestone and granite facing and glazed tile interior finish. The Connecting Wing to the Switch House, approximately 32 feet by 32 feet in plan, will be a two-story structure above grade. Four underground venturi and valve chambers are to be constructed of reinforced concrete. The work also includes the furnishing and installation of a 30-ton overhead traveling crane, heating, ventilating and dehumidification systems, plumbing and miscellaneous piping systems, cast iron special castings, pump suction valves, sluice and flap gates, electrical power and lighting systems, steel plate pump discharge and header pipe, and 54-inch reinforced concrete water mains. The main pumping units will be furnished and installed under another contract.

The Contract Documents, including the Notice to Bidders, the Forms of Proposal and Agreement, the Specifications, and the Contract Drawings may be examined during business hours, at the office of the Department of Water Supply, Room 706 Water Board Building, Detroit, Michigan. The Contract Documents may be obtained by making a deposit of Fifty Dollars ($50.00) per set, which sum will be refunded upon the return of the complete Contract Documents in good condition within thirty (30) days after the bid date, or if used in making a bona fide proposal.

As security for the acceptance of the Contract, each proposal shall be accompained by a certified check in an amount not less than four per cent (4%) of the total lump sum price bid, drawn payable to the City of Detroit, Board of Water Comhissioners, or a satisfactory bid bond executed on the form provided in the Proposal which will hold and firmly bind the bidder and his surety unto the Corporation of the City of Detroit in the full amount of four per cent (4%) of the total lump sum price bid.

No proposal may be withdrawn for at least sixty (60) days after the scheduled closing time for receipt of bids.

The Board of Water Commissioners reserves the right to waive any informality in any bid and to accept any bid, or to reject any or all bids, should it deem it to be in the best interests of the City of Detroit to do so.

CITY OF DETROIT
BOARD OF WATER COMMISSIONERS
Harvey A. Wagner, President
Oscar A. Wagner, Vice-President
George A. Shaffer
Alfred J. Simpson
L. G. Lenhardt, Superintendent,
General Manager and chief Engineer
E. H. Bauer
Acting Secretary

OFFICIAL PROPOSALS

Bids: April 7, 1955

Maine Turnpike Authority

MAINE TURNPIKE
Section 2—Portland to Augusta
(Augusta Extension)

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACT NO. 225
TOLL PLAZAS—MILE 42 to 51

at the offices of the Authority, 17 Bishop Street, Portland, Maine, until 10:00 A. M., Eastern Standard Time, on April 7, 1955, at which time and place the Proposals will be publicly opened and read.

The work included under this Contract consists generally of the construction of the toll plazas at the South Portland and Brighton Avenue Interchanges and the Route 1 and the Route 100 Connections, between Mile 42 in the Town of Scarborough and Mile 51 in the Town of Falmouth, along the route of the Turnpike Extension, exclusive of the grading, drainage and paving therefor. Each plaza will have a utility building and toll booths, with canopy, in which toll collection equipment will be installed by others.

Contract documents may be examined by prospective bidders during regular office hours at the offices of the Authority at the above address and at the offices of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., and may be obtained from the Authority, 17 Bishop Street, Portland, Maine, upon payment of Thirty Dollars ($30.00) for each set. Contract documents need not be returned and the payment will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be accompanied by a certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than five per cent (5%) of the Lump Sum quoted in the Proposal but not less than $500.00 nor more than $200,000.00

Proposals must be made upon the Proposal forms furnished separately by the Authority with the contract documents and must be enclosed in the sealed special addressed envelopes provided therefor bearing the name and address of the bidder and the number of the Contract on the outside.

Before the award of the Contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work within the time required and to the satisfaction of the Authority.

The bidder, to whom a Contract is awarded, will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, in an amount not less than the Lump Sum quoted in the Proposal.

The Authority reserves the unqualified right to reject all Proposals or to accept that Proposal which in its sole judgment will under all circumstances serve its best interests. The Contract will be awarded or Proposals rejected within thirty days after the date of opening Proposals, except that in the event of default by a successful bidder the Authority reserves the right to accept the Proposal of any other bidder within twenty days after such default.

MAINE TURNPIKE AUTHORITY
Paul C. Thurston, Chairman

Portland, Maine
March 8, 1955

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4375) will be received at Kennewick, Washington, until April 28, 1955, for furnishing labor and materials for earthwork, canal lining, and structures, Main Canal, station 1325+00 to end, and Hoover Wasteway, station 1+00 to station 53+96, Kennewick Division, Yakima Project, Washington. Location near Kennewick, Washington. Principal items are 433,000 cu. yds. excavation; 20,000 cu. yds. earth lining for canal; 385 cu. yds. concrete in structures; 5,350 lin. ft. concrete pipe; various items of metalwork; and other work. Completion time 530 days. For particulars, address Bureau of Reclamation, Kennewick, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (specifications No. DC-4374) will be received at Huron, South Dakota, until April 13, 1955, for furnishing labor and materials for stringing conductors and overhead ground wires for Big Bend-Huron-Watertown 230-kv transmission line, Transmission Division, South Dakota, Missouri River Basin Project. Location: Buffalo, Hand, Beadle, Clark, Hamlin, and Codington Counties, South Dakota. Principal items are: 1,632 assemblies, furnishing, assembling and attaching single-string insulator assemblies with 14 insulator units per string; 130.3 miles of line, furnishing and stringing three 954,000 circular-mil ACSR conductors; 130.1 miles of line, furnishing and stringing one ½-inch galvanized steel overhead ground wire; 5,636 dampers, furnishing and attaching vibration dampers to conductors; 2,175 dampers, furnishing and attaching vibration dampers to overhead ground wires; and other work. Completion time 150 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4367) will be received at Goleta, California, until April 12, 1955, for furnishing labor and materials for earthwork, steel pipe lines, pumping plant, 50,000-gallon elevated steel water tank, and structures, Carpinteria Distribution System, Shepard Mesa Extension, Cachuma Project, California. Location near Santa Barbara, California. Principal items are 1,000 cu. yds. excavation and backfill for pipe line trenches; furnishing and installing approximately 2,500 lin. ft. of 6⅝ and 8⅝-inch diameter steel pipe lines and accessories; furnishing and erecting 50,000-gallon elevated steel water tank; furnishing and installing two motor-driven pumping units and related apparatus, each 400-gpm capacity; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, P. O. Box 701, Goleta, California, or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4369) will be received at Huron, South Dakota, until April 7, 1955, for furnishing labor and materials for Gavins Point Tap-Gavins Point, 115-kv Transmission Lines, Transmission Division, South Dakota, Missouri River Basin Project. Location near Yankton, South Dakota. Principal items are 57 wood-pole, H-frame structures; furnishing and stringing 8.06 miles of transmission line, consisting of three 397,500 c.m. ACSR conductors and two ⅜-inch galvanized steel overhead ground wires; and other work. Completion time 90 days. For particulars, address Bureau of Reclamtion, P. O. Box 825, Huron, South Dakota; P. O. Box 2130, Billings, Montana; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Department of Commerce, Bureau of Public Roads, March 7, 1955. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., APRIL 6, 1955, for Project 2A2, Colonial Parkway, James City County, Virginia. Construction of Ferry Wharf and Slip at Glass House Point. Length: 0.292 mile. The approximate quantities of the more important items are: 2,180 cu. yd. Concrete; 720,000 lb. Reinforcing Steel; 35,300 lin. ft. Timber Piling and 10,300 lin. ft. Precast Concrete Piling. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above or Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Spelman, Division Engineer.

Sealed bids for remodeling Building No. 9, National Institutes of Health, Bethesda, Maryland, will be received until 1:00 P.M. EST April 5, 1955, in Rm. 5333 General Services Bldg., 19th & F Sts., N. W., Washington, D. C., and then publicly opened in Rm. 1306. Two sets of bidding material may be obtained without charge by general contractors interested in bidding the complete project from Public Buildings Service, Rm. 1304 General Services Bldg., 19th & F Sts., N. W., Washington, D. C., EX. 3-4900, Br. 2397. P. A. Strobel, Commissioner of Public Buildings, General Services Administration.

Read the Official
Proposal Columns of ENGINEERING NEWS-RECORD
This Week and Every Week

OFFICIAL PROPOSALS

Bids: March 30, 1955

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania

LACKAWANNA RIVER BRIDGE
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10.00 a.m., Eastern Standard Time, the 30th day of March 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of substructure of the Lackawanna River Bridge, Turnpike Section 37JK, part of the Northeastern Extension of the Pennsylvania Turnpike in Moosic and Taylor Boroughs over the Delaware and Hudson Railroad; the Delaware, Lackwanna and Western Railroad and Lackawanna River, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 4,630 feet north of the centerline of US 11, at Turnpike Station 132+79 in Moosic Borough, Lackawanna County; thence in a northerly direction 750 feet to Turnpike Station 140+29 at a point approximately 5,380 feet north of the centerline of US 11 in Taylor Borough, Lackawanna County, a distance of approximately 0.14 miles.

The approximate quantities of the principal items for the Lackawanna River Bridge Substructure are as follows:

Class 2 Excavation	2,940 cubic yards
Class 2x Excavation —River Piers	1,180 cubic yards
Class A Concrete in Piers & Pier Footings	3,907 cubic yards
Class B Conc. Abutment and Abutment Footings	785 cubic yards
Steel Reinforcing Bars	464,500 pounds
Structural Steel	3,400 pounds
H-Beam Bearings Piles (12-BP-53)	9,298 linear feet

Copies of plans and specifications and other contract documents are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on March 17, 1955. Plans, specifications and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans, and contract documents for this section, exclusive of specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P.O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
9 March 1955

Bids: April 5, 1955

New Jersey Turnpike Authority

CONTRACT NO. W-6

Proposals are invited for Contracts No. W-6, W-6A, W-6B, and W-6C which involve drainage, paving, landscaping and other incidental work in connection with Improvements at Service Areas 4N, 7S and 8N, in Burlington and Middlesex Counties, New Jersey, all in connection with the construction of the Widening of the New Jersey Turnpike.

The principal items of work include:

	Contract No. W-6A	Contract No. W-6B	Contract No. W-6C
Roadway Excavation, Cu. Yds.	4,050	2,500	3,150
4" Topsoiling, Sq. Yds.	5,200	6,200	7,000
Subbase, Sq. Yds.	10,050	6,150	7,100
Macadam Base Course, Sq. Yds.	18,600	13,800	16,200
Asphaltic Concrete Pavement, Sq. Yds.	23,050	20,000	21,575
Oil Resistant Seal for Asphaltic Concrete Surface, Sq. Yds.	15,150	11,575	13,650
Curb, Lin. Ft.	6,100	4,900	5,225

Principal items of work for Contract No. W-6 equal the sum of the quantities listed for Contracts No. W-6A, W-6B and W-6C. If a bidder submits a proposal for Contract No. W-6, he must also submit proposals for Contract No. W-6A, W-6B and W-6C in order that the Authority may equitably compare proposals.

Proposals will be received at the New Jersey Turnpike Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Standard Time on the morning of April 5, 1955, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after March 17, 1955, at the office of the Authority and at the offices of the Consulting Engineers, DeLeuw, Cather and Brill, 202 E. 44th Street, New York 17, New York, and 99 Main Street, Hightstown, New Jersey. Contract documents will be furnished upon payment of Ten Dollars ($10.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman
March 10, 1955

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

(Additional Positions Vacant Ads on page 101 & 102)

ESTIMATOR EXPERIENCED in building construction. Permanent position with large general contractor specializing in construction of industrial, commercial and public buildings in Ohio, Michigan and Indiana area. Write fully stating experience, education, salary expected and furnish references. All replies confidential. P-5656, Engineering News-Record.

CHIEF CEMENT Chemist wanted with experience as Chief or Assistant Chief Chemist in a Portland Cement Manufacturing Plant or equivalent. Attractive proposition awaits the right party. Location, middle eastern states. P-5582, Engineering News-Record.

SMOKE & HEATING Plant Inspector Wanted. $410 a month to start. Annual automatic increases to $475. Later longevity increases. Inspectional and enforcement work on all types of heating plants and ventilating systems; and smoke abatement. Applictions accepted until needs of service filled. Residents of Illinois, Iowa, Minn., Mich., and Wis. only. Personnel Division, City Hall, Madison 3, Wis., ALpine 6-8331.

ASSISTANT ENGINEER wanted by the City of Fulton, New York. Salary $4100 to $4500. Retirement, sick leave, and vacation benefits. Experience in Municipal Engineering preferable. Write or call City Engineer, City Hall, Fulton, New York.

WANTED—SMOKE abatement Engineer, salary open—apply to: Mr. Joe L. Greenlee Personnel Manager, Room 303, City Hall Building, Charlotte, North Carolina.

MALE HELP Wanted: Reinforcing bar estimators and detailers, structural steel detailers, must be experienced. Personnel, P. O. Box #1087, Charlotte 1, N. C.

GENERAL SUPERINTENDENT experienced chemical and refinery construction for midwestern contractor. Write stating qualifications, previous employment, availability, education, references, and salary expected. P-5696, Engineering News-Record.

RESIDENT ENGINEER-Inspector needed in Atlanta, Georgia, on bank building of highest type. Several years employment for qualified man. Structural, mechanical, and finish experience essential. Submit immediate past record, references, salary. Toombs, Amisano & Wells, Architects, 70 Fairlie St., N.W., Atlanta, Ga.

WANTED — STRUCTURAL Steel estimator. Must be experienced in taking off structural steel and miscellaneous iron. Quantities from architects drawings. Permanent position. City Iron Works, 350 New Park Avenue, Hartford, Conn.

PRINCIPAL ENGINEER, wanted by City of White Plains, New York, salary $8,000. Required: B.S. in C.E., P.E. (N.Y.) and 8 years public works engineering experience. Civil Service position. Please reply with resumé to Personnel Director, Municipal Building, White Plains, N. Y.

ENGINEER — CIVIL — Designer on bridges & highways complete charge of department. Location N.Y.C. Our men advised. Mail resume to P-5828, Engineering News-Record.

POSITIONS VACANT

WANTED: APPLICATIONS from registered engineers to fill City Engineer vacancy. Progressive city of 23,000. Attractive salary and other employee benefits. Contact Mayor Ernest Gundersen, Municipal Building, Aberdeen, South Dakota.

PARTY CHIEFS, Instrumentmen, Chairmen and Computers experienced in property and right of way surveys for large flood control project in Florida. Permanent employment with retirement benefits for qualified personnel. Send resume of experience to P. O. Box 1671, West Palm Beach, Florida.

CIVIL ENGINEER II: Salary range $4,784-$5,720 annually. Qualifications: Twenty-one to forty years of age. Graduate of a recognized school of engineering. Two years of structural engineering experience. Driver's permit. Apply to Room 314, City Hall, Richmond, Virginia.

ROAD, BRIDGE general supt. required for multi-million dollar project, Eastern U. S. Excellent opportunity for right man. Please submit educational background, experience, references, salary desired. P-5799, Engineering News-Record.

PITTSBURGH STEEL Warehouser has opening for man experienced in pricing and selling hot and cold rolled sheets; experience in shear line operation, shearing blanks, etc. a must. P-5810, Engineering News-Record.

WANTED: BRIDGE & Highways designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-5389, Engineering News-Record.

CHICAGO OFFICE position. Manufacturer of Chlorinating equipment requires services experienced sanitary engineer for sales promotion, correspondence and estimating. Administrative ability and some knowledge of Chlorination essential. P-5822, Engineering News-Record.

AN OLD established concern covering Eastern Seaboard required the services of a man well experienced in the buying and selling of used contractors and road machinery, on a profit sharing basis. Replies confidential. P-5848, Engineering News-Record.

CIVIL ENGINEER public works engineering with progressive municipality 65,000 population. Annual salary $4560-$5760. Write Personnel, Municipal Building, Hamilton, Ohio.

ENGINEERS, DESIGNERS, engineering draftsmen for established consulting firm designing sewers, pumping stations, sewage treatment plants, water supply systems, etc. Structural and hydraulic design, hydraulic computations, specifications. Location, New York State. Give full particulars. Our employees know of this advertisement. P-5856, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

(Continued on opposite page)

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)

$1.80 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.80 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. for March 31st issue closing March 21st.

SERVICE MANAGER WANTED

Immediate opening. South Louisiana Caterpillar distributor desires Service Manager of proven ability. Excellent future for qualified person. Send detailed information regarding experience, age and qualifications to:

E. E. Conner, General Service Manager
BOYCE-HARVEY MACHINERY, INC.
7330 Florida Street, Baton Rouge, Louisiana

POSITIONS WANTED

(Continued from opposite page)

CONSTRUCTION SUPERINTENDENT and engineer desires work in New England. Experienced industrial plants, housing, heavy construction, bridge and marine work, skilled estimator. PW-5638, Engineering News-Record.

ESTIMATOR, AGE 30, general const. 8 yrs., estimating, purchasing, expediting and field supervision. Will relocate. PW-5662, Engineering News-Record.

CONSTRUCTION ENGINEER, age 37, Reg. P.E. Experienced all phases road construction including excavation, drainage, and pavements in engineering, estimating, and field supervisory capacities with profit making results. Interested association with substantial highway constructor as project superintendent or engineer. PW-5725, Engineering News-Record.

SEWER FOREMAN, expert timberman, middle age, Italian, thoroughly experienced in sewer and drainage construction, desires permnent connection. Any location. PW-5732, Engineering News-Record.

CONSTRUCTION ENGINEER CE 28; 5 years varied heavy construction experience in highway, building and office engineering. Responsibility desired. PW-5776, Engineering News-Record.

SAFETY ENGINEER (38) associate member ASSE, 16 yrs. construction experience. Full responsibility. Will travel. L. R. Bright, Box 657, Mt. Home, Idaho.

MECHANICAL ENGINEER — Thoroughly experienced in industrial, process and commercial piping and heavy equipment installation, industrial plant and foundation construction. Qualified estimator and planner with supervisory ability. Seeking position where ability and conscientious efforts can be applied. Will consider any locality. PW-5775, Engineering News-Record.

MECHANICAL ENGINEER, (33) registered Missouri 8 yrs. experience chemical plant construction. Design, specs., purchasing, field supervision, resident engineer. Desires connection with future. Can travel. Available April 1, 1955. PW-5844, Engineering News-Record.

CONSTRUCTION ENGINEER — BSCE — 30 — two years design heavy industrial buildings. Five years all phases of field work on heavy industrial and hydroelectric projects. Special interest in estimates and schedules. PW-5845, Engineering News-Record.

ELECTRICAL SUPERINTENDENT. Experienced in overhead and underground power distribution. High voltage transmission lines available April 15. Will go anywhere. PW-5770, Engineering News-Record.

STOP: YOU name it—I'll do it: Graduate of Annapolis (1943) and M.I.T. (1949) in C.E., line officer in Navy 4 yrs.; Ill. St. H'way—18 mos.; hydrogen bomb plant constr. area eng'r. —18 mos.; ordnance plant constr. area eng'r.— 4 mos.; Paducah atomic plant constr. coordinating mechanical sup't.—20 mos.; Portsmouth atomic plant senior P. G. pipe erection eng'r.— 6 mos. Age 34, married, 2 children, hard worker, hustler, conscientious, reliable, cost conscious, will make you money . . . guaranteed. Speak Spanish fluently. Go anywhere. Available now. Past salary $176.94/wk. PW-5809, Engineering News-Record.

(Continued on page 103)

SALES ENGINEERS

Middle Atlantic Division of large company has openings for sales engineers in Baltimore; Boston; Harrisburg, Pennsylvania; and Trenton, New Jersey to handle promotion and sale of fabricated metal products to engineering and construction markets. Ages 24 to 30. Engineering degree necessary.

P-4753, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ESTIMATOR

Experienced in process equipment and piping costs for chemical plant and refinery construction. Position offers good future with progressive Penna. firm. Send resume to—

J-65, P. O. Box 3575
Phila., 22, Pa.

MECHANICAL ENGINEER WANTED

Graduate Mechanical Engineer experienced in pulp and paper maintenance for large progressive mill in Middle Atlantic States. Under 35 years of age. Good salary with excellent opportunity for advancement. Give detailed resume of experience.

P-5431, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

STRUCTURAL DESIGNERS

for work on
Major Bridge Projects
Recent Graduates will be trained
MODJESKI & MASTERS
State St. Bldg. Harrisburg, Pa.
or 2400 Canal St., New Orleans 19, La.

WANTED
CONSTRUCTION SUPERINTENDENT

For work in Pennsylvania with experience on Power Plants, Industrial and Institutional Buildings. Must be thoroughly experienced, Engineering Education desirable but not essential. We want a man who is used to working for the best clients and who can produce results satisfactorily to the Owner and to the Contractor. We are not looking for a "Swivel Chair" Superintendent. State full information covering Experience, Age, Reference, Education, Availability and Salary in letter of application.

P-5851, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

Appliance Salesman

Experienced, capable supervising field force calling on builders. Long Island resident preferred. Opportunity for vigorous promotion minded young man with administrative ability, not afraid of hard work. Established company. Compensation in accordance with ability. Salary; references essential.

P. O. Box 264, Hicksville, L. I., N. Y.

DESIGN ENGINEERS

Permanent Openings Available at Our Cleveland, Ohio Offices for qualified DESIGNERS experienced in:

. . . . STRUCTURAL STEEL
. . . . REINFORCED CONCRETE
. . . . PRESSURE VESSEL
. . . . PROCESS PIPING
. . . . PROCESS HEATERS
. . . . EQUIPMENT SPECIFICATIONS
. . . . INSTRUMENT SPECIFICATIONS
. . . . HEAVY MACHINES
- - - - Top Hourly Rates
- - - - Bonus Participation
- - - - Moving Expense Allowance

WRITE—giving complete details of experience, education, age, etc.—to:

E. A. Kolner,
ARTHUR G. McKEE & COMPANY
2300 Chester Ave. Cleveland 1, Ohio

WANTED
Superintendent for Heavy Construction

Experienced in heavy excavation, grading, blacktop and concrete paving, concrete foundations, and pile driving. Must be able to organize, must be cost conscious, must be able to substantiate satisfactory cost and production performance on past work. This is a permanent position with a substantial firm. We are interested in only top personnel. Our organization knows of this ad. Location: New York State.

P-5831, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

CIVIL ENGINEER—

Wanted by City of Ferndale, Michigan. College or University graduate. Salary dependent on training and experience. Previous experience in Municipal Engineering not required.

ENGINEER'S AIDE

Wanted by City of Ferndale, Michigan. 2 years college or university training and not less than 2 years practical engineering experience. Salary dependent on training and experience.

Forward applications to:

Roy F. Goodspeed,
Director of Public Works & Engineering
CITY OF FERNDALE
21205 Woodward Avenue, Ferndale 20, Mich.

DESIGN ENGINEERS

Excellent opportunity for Engineers experienced in design of Filter Plants and Water Works—Bridges and Highways. Recent Graduates also accepted. Good living conditions and Bonus and Pension Plan. Include experience, date available, salary desired in first letter. Gannett Fleming Corddry & Carpenter, Inc., Box 366, Harrisburg, Pa.

HIGHWAY ENGINEERS

FOREIGN & MID-WEST

Design Engineers for office work in St. Louis in connection with long range highway design program. Desire adequate experience or training in geometric design of interchanges, alignment and profile computations and associated work.

Field Engineers for highway location and supervision of construction in Far East. Desire college background with recent highway or railroad experience, bachelor status, 18 months contract, excellent salaries, plus quarters and allowances.

Employee benefit and retirement plan, paid vacations, sick leave and paid holidays. Modern airconditioned offices in St. Louis, downtown location.

SVERDRUP & PARCEL ENGINEERING CO.

Room 618, Cafritz Bldg.
Washington 6, D. C.

1134 Locust St.
St. Louis 1, Mo.

MECHANICAL ENGINEERS

For company's Equipment Engineering Division located in New York City. Minimum five years' experience designing, selecting and specifying all types of maintenance and shop equipment.

Must know general machine shop practice, garage operations, engine rebuilding, power plant operations, refinery and oil field maintenance equipment sufficiently to be capable of preparing specifications for manufacture, economic and engineering analysis for selection and guidance for tests and inspection of purchased equipment.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 13

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, NEW YORK

THE AUSTIN COMPANY

Offers Opportunities to Qualified Engineers and Draftsmen

Positions are open to capable engineers and draftsmen who can design and/or prepare plans and specifications for complete industrial plants, all related structures, and building equipment falling within the following categories:

DESIGNERS—Office buildings, laboratories, and industrial buildings. Positions require those possessing vision and creativeness.

STRUCTURAL—Industrial buildings and miscellaneous structures of steel and reinforced concrete.

MECHANICAL—Heating, air conditioning, ventilation systems, process piping, conveying systems, plumbing, sewer, and sprinkler systems.

ELECTRICAL — Industrial lighting and power distribution and controls.

DETAILERS—Structural steel fabrication for industrial buildings.

Assignments are in connection with our long-established offices located on the East coast and Midwest areas. Desirable working conditions, established vacation and sick leave plans, also paid holidays.

Full particulars as to education, experience, and compensation desired should be given in first letter.

NATIONAL HEADQUARTERS
16112 Euclid Ave. Cleveland 12, Ohio

ENGINEERS

Challenging positions available in St. Louis office for qualified engineers for design and supervision of bank buildings, hotels and related structures, located in U.S.A., Mexico and South America.

STRUCTURAL DESIGNERS—Seasoned in all phases of design of reinforced concrete and structural steel for foundations and framing, for alterations and new buildings of unusual character.

ELECTRICAL—Creative and experienced in design and construction of large electric signs, with experience in the design of lighting and wiring for commercial buildings also desirable.

MECHANICAL—Top quality man with broad experience in the design and supervision of plumbing, heating and air conditioning for commercial buildings, some electrical experience desirable. Will be required to survey and report existing job conditions, field inspections, supervision and trouble shooting. Must know latest methods, materials, estimating and contractor's procedure. Position entails considerable travel and responsibility.

These positions offer unusual opportunities to men with proven ability, records and experience in their respective fields, salaries will be paid accordingly.

Furnish complete particulars regarding age, education, experience, reference and present salary. All replies are confidential.

Retirement plan at no cost to employees, incentive bonus plan, paid vacations and group insurance.

Chief Engineer

BANK BUILDING & EQUIPMENT CORPORATION OF AMERICA

906 Sidney Street St. Louis 4, Missouri

ASSISTANT CHIEF ENGINEER

Guam, Pacific Island, Project

Must have 10 years' experience in various phases of construction and engineering operations, and be able to supervise and direct the work of others. Graduate Engineer required.

ENGINEERS
Technical and Narrative Reports
Electrical Design
Architectural and Structural Design

Write, giving detailed account of experience, education, etc.

BROWN-PACIFIC-MAXON
"Guam" Contract NOy-13931
P.O. Box 3316, Rincon Annex
San Francisco "2"—Calif.

WANTED

EXPERIENCED ASPHALT SUPERINTENDENT

Must be able to assume full charge of modern plant and field operations. Old established firm—Central Jersey. Give full experience and income desired in first letter.

P-5815, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

MECHANICAL ENGINEER WANTED

Graduate Mechanical Engineer experienced in the operation of Fourdrinier paper machines, refining and related equipment for large progressive mill in Middle Atlantic States. Under 35 years of age. Good salary and excellent opportunity for advancement. Give detailed resume of experience.

P-5434, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

Designers Detailers Draftsmen

for work on

Bridges, Expressways, Turnpikes

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(Continued from page 101)

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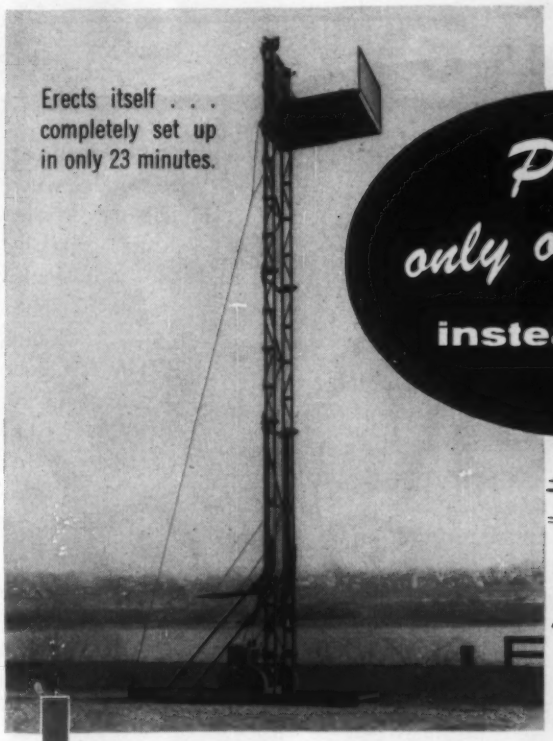

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EDITORIALS

Financing New TVA Construction

FINANCING the cost of building new power facilities for the Tennessee Valley Authority by the sale of TVA bonds is said to be under consideration by the Eisenhower Administration. Up to the present time all TVA construction has been paid for out of the U. S. Treasury, although the original TVA Act of 1933 authorized the TVA board to issue up to $50 million in bonds to build "any future dam, steam plant or other facility . . . for the generation or transmission of electric power."

This proposal has interesting aspects, especially at this time when a similar proposal to finance part of the President's big highway program with bonds issued by a new federal authority has been attacked as an unsound device for concealing a big increase in the federal debt. The only significant difference between the two proposals is that interest and amortization costs for the TVA bonds would be paid by the TVA out of its income from power sales, whereas similar charges for the highway authority bonds would be paid by the Treasury out of receipts from federal taxes on gasoline.

The Roosevelt Administration never used the bond-financing provisions of the original TVA act for several reasons, the chief one being that President Roosevelt wanted to do a lot more than just build dams and power plants as part of the TVA experiment in regional development. So he got Congress to appropriate the money needed to start the TVA work. That method of supplying TVA with needed funds has been used since 1933. Now that power development is the major and dominant element of the TVA operations, bond financing for new construction should be fairly simple.

Revenue bond financing for TVA expansion is a sound proposal and would have the advantage of putting on the TVA board the basic responsibility for logical planning and for keeping its outlays well within the limits of what can be financed from anticipated income. And if TVA bonds were made to stand on their own feet, without federal backing, no question of increasing the federal debt by a back-door route could be raised.

Employment Conditions for Engineers

DURING THE DISCUSSION of unionization of engineers at the San Diego meeting of the American Society of Civil Engineers, the Engineers' Joint Council was criticized for having done so little to improve the economic position of engineering employees. One of the panel members recommended that the EJC constitution be revised to require it to work for the economic betterment of both employers and employees.

Similar criticism has been directed toward the major engineering societies in the past by sincere people who overlook the handicap that the directors of any organization made up of employers and employees are working under where unionization is an issue. Any action having the outward appearance of aiding employees, which is taken by a board on which there are employers, is looked upon with suspicion by the administrators of labor laws. The old-line unions are also quick to challenge any such proposal.

The ASCE board learned this several years ago when it undertook to aid engineering employees in setting up collective-bargaining groups as a means for keeping engineers from being compelled to join unions in which they would have no voice. But it had to abandon its sponsorship when it became apparent that the bargaining groups would be open to the charge that they were employer-dominated.

Only in the matter of improving the scales of salaries paid to engineers employed by public agencies have the ASCE and similar organizations had any real success. And there they were dealing with legislative committees or city councils, not with the administrators of labor laws.

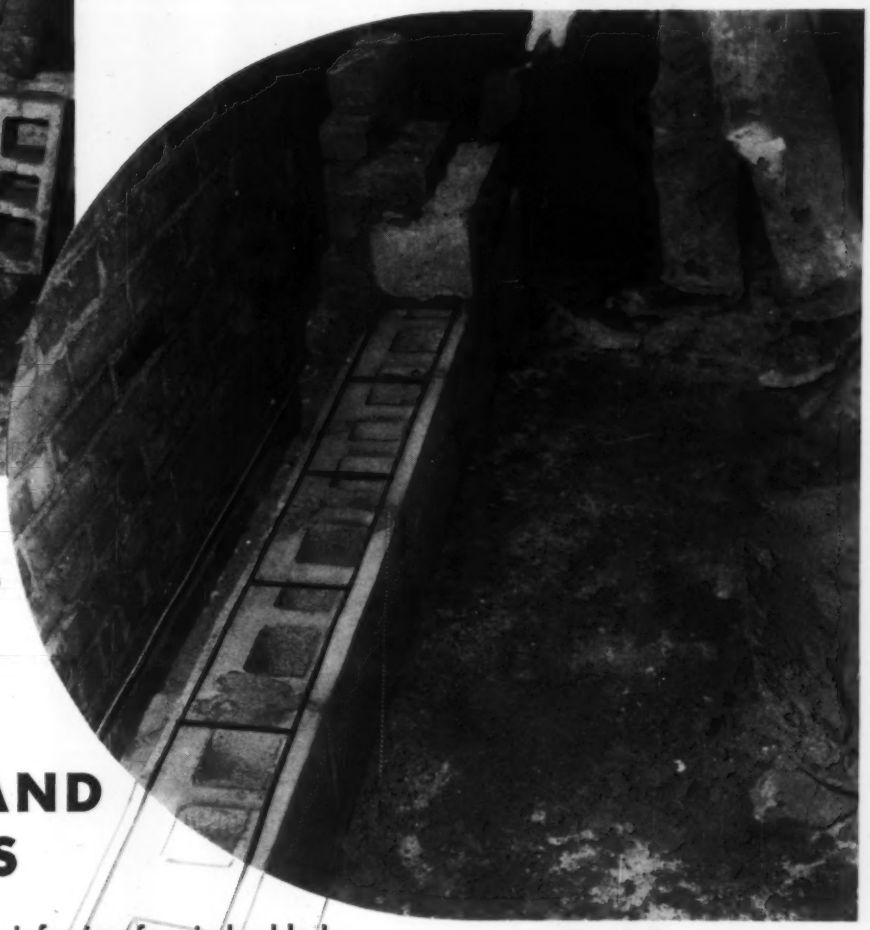
Engineers' Joint Council can perform many useful services for the engineering profession, but action on unionization matters is outside its field, just as it is outside the fields of EJC's constituent societies.

UMW Sets a Good Example

DEEP IN THE HEART of the Appalachian coal region, the Memorial Hospital Association of Kentucky, financed by the United Mine Workers Welfare and Retirement Fund, is building ten hospitals scattered over a wide area. It is difficult to think of a finer investment for a union welfare fund. And as an article on p. 32 of this issue makes plain, the UMW is carrying out the project with finesse in both planning and construction.

As to planning, small hospitals are grouped around large, central hospitals with more extensive facilities and specialized staffs. To cut costs, one center handles laundry for all the hospitals as well as all purchases. Then, construction—and design—was aided by choosing a general contractor for all ten hospitals and making him a member of the design team, along with three architects. The contractor's knowledge of costs and his construction experience proved invaluable in selecting materials and equipment, and in steering designs to arrangements that could be built economically. Another unusual feature of the hospital project is that the work was carried out by members of the United Construction Workers, a major branch of UMW's District 50, who received some valuable above-ground construction experience.

Congratulations are due the UMW for wisely investing its fund in these much-needed hospitals and to the Memorial Hospital Assn. for the way in which it planned and executed the program.



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